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UNITED STATES DEPARTMENT OF AGRICULTURE

Miller DU 8-5455
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Washington, Feb. 19, 1971

Skilled Labor Value in Rural Development Feature of Outlook Conference:

The role a skilled labor force plays in stimulating economic growth--will be one of the features of the National Agricultural Outlook Conference to be held at the U.S. Department of Agriculture in Washington, D.C., Feb. 23-25.

The focus will be on the progress and problems of rural workers coping with the decline in agricultural jobs and the shift of the rural economic base to nonfarm activity. Chairing the session will be Linley E. Juers, Deputy Administrator of USDA's Economic Research Service.

"The Role of Manpower in Rural Economic Development," will be presented by Joseph D. Coffey, Assistant to the Deputy Under Secretary for Rural Development, USDA. Mr. Coffey will describe the conditions promoting economic development and the need for a well trained labor force to draw business to rural America.

"Using Labor Force Information in Rural Areas," is the topic of Sonya Shepherd, Industrial Relations Manager of Boise Southern Company. Mr. Shepherd will discuss labor and the development process from the point of view of a business with rural investments.

Daniel W. Sturt, Director of the Rural Manpower Administration, Department of Labor, will outline the manpower skills inventories his agencies make in its Smaller Communities Program.

A panel discussion will follow in which the speakers and the chairman will be joined by USDA's William C. Motes, Director of the Economic Development Division, ERS, and Samuel M. Rosenblatt, Director of the Office of Economic Research, Economic Development Administration, Department of Commerce.



UNITED STATES DEPARTMENT OF AGRICULTURE

Miller DU 8-5455
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Washington, Feb. 22, 1971

Changing Farm Credit Scene to be Reviewed at Outlook Conference:

An expected expansion in farmers' use of credit will be analyzed by financial experts at the National Agricultural Outlook Conference at the U.S. Department of Agriculture in Washington, D.C., Feb. 23-25.

"The Farm Credit Outlook" is the title of a talk to be given by agricultural economist Carson D. Evans of USDA's Economic Research Service. He will discuss the effect lower interest rates and a larger money supply will have on farming this year.

Following the talk Wednesday afternoon, economist James T. Hall of the Federal Extension Service will chair a discussion group. Joining the panel will be Darrell Dunn, Assistant Administrator for Farmer Programs, Farmers Home Administration; Gene Swackhammer, Director, Research Division, Farm Credit Administration; Ronald Bird, Economic Research Service; Louis D. Malotky, Deputy Assistant Administrator, FHA; and DeWitt I. Derr, Director, Agriculture and Rural Affairs Committee, American Bankers Association.

USDA 554-71

UNITED STATES DEPARTMENT OF AGRICULTURE

Miller DU 8-5455
McDavid DU 8-4026

Washington, Feb. 22, 1971

Environment Draws Attention at Agricultural Outlook Conference:

Water quality and food safety will be the main themes of speakers at the environment session of the National Agricultural Outlook Conference to be held at the U.S. Department of Agriculture in Washington, D.C., Feb. 23-25.

On the first day of the Conference, experts will examine the progress and problems of maintaining quality of the agricultural environment. Chairing the session will be USDA's Harold G. Geyer, Director of the National Resources and Environmental Improvement Staff, Federal Extension Service.

"Detergents and Where We Are Going," is the topic of Dr. Harvey Alter, manager of the Harris Research Laboratories of the Gillette Company Research Institute. Dr. Alter will discuss the pros and cons of alternatives to the phosphate detergents which have befouled water supplies.

"Food Safety," will be presented by Virgil O. Wodicka, Director of the Bureau of Foods, Food and Drug Administration, Department of Health, Education, and Welfare. Mr. Wodicka will outline the work being done by Food and Drug to monitor the quality of our food supply with special emphasis on pesticide residues and food additives.

USDA 555-71



UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

CLOTHING AND TEXTILES: SUPPLIES, PRICES, AND OUTLOOK FOR 1971

Paper by Virginia Britton
Consumer and Food Economics Research Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., February 23-26, 1971

Clothing expenditures and prices.--Per capita expenditures on clothing and shoes reached an all-time high of \$255 in 1970, according to preliminary data. Expenditures in dollars of constant buying power, however, have changed little in recent years (table 1). Rising prices--an increase of 4.1 percent in the apparel component of the Consumer Price Index in 1970--account for almost all the apparent movement.

In this context, it is heartening to note that, while the end of inflation is not yet in sight, it is tapering off in apparel. The rate of advance in the apparel index declined in 1970 for the first time since 1964. The 1970 rate was not only lower than the 1969 rate, but also lower than the 1968 rate and almost as low as the 1967 rate (table 2). As a result, the apparel and all-items indexes of the CPI are again moving in their normal relationship--the apparel index rising less than the all-items index.

Price movement within apparel has also been in its usual pattern. Increases for footwear outpaced increases for men's and boys' and women's and girls' apparel. Increases in these three apparel groups in 1970 were 5.3 percent, 4.1 percent, and 3.8 percent, respectively. In the past 10 years, price increases for these 3 groups have been 38 percent, 32 percent, and 27 percent, respectively.

All indications point to continued inflation in apparel prices in 1971 but probably at a lower rate than we had prior to 1970 and possibly lower than in 1970, too. If incomes rise in 1971 as expected, higher per capita expenditures on apparel will again result, but there is no reason to expect any major shift in expenditure levels in terms of dollars of constant value.

Supplies of raw materials.--Details of fiber use in 1970 are not yet available. However, 1970 was probably not greatly different from 1969. Use in 1969 was 51 pounds per capita--about one-half for clothing and one-quarter for home furnishings, roughly the same proportions as in 1960. Total use in 1969 consisted of 21 pounds of cotton, 2 of wool, 8 of rayon and acetate, and 20 of noncellulosic fibers. Of the total, about 91 percent was produced in the United States and 9 percent was imported, partly in manufactured products.

Because the manmade fibers have greater utility per pound than the natural fibers and are increasingly important in the total, comparisons of total consumption over time are most meaningful in terms of a measure of constant composition, cotton equivalent. On this basis, use in recent years has increased sharply--to 66 pounds in 1969 from an average of 43 pounds in 1960-1963.

Our cotton usage is largely from domestically grown fiber. U.S. use plus exports in the year beginning August 1, 1970 is expected to exceed the year's production and so will eat into stocks. We should, however, end the year with more than a half year's supply on hand for U.S. mills.

We normally produce a smaller proportion of the wool than of the cotton we use, and our wool production in 1971 is expected to drop slightly. World supplies of wool are expected to be ample, however.

U.S. production of manmade fibers increased 55 percent from 1965 to 1969. U.S. mills probably used about the same amount of manmade fibers in 1970 as in 1969--the first significant pause in their advance in a decade. Competitive losses to manmade fibers may be slowed during 1971 also, since cotton appears to be making a comeback in big uses such as bedsheeting. By July 1971, U.S. production capacity for manmade fibers is expected to be 38 percent greater than our actual production was in 1969.

U.S. production of hides (cattle and calves) will probably be about 2 percent higher in 1971 than the 1970 figure, estimated at 40 million. U.S. leather production is expected to increase also. Two additional factors are of major importance in the supply of footwear. One is the use of leather substitutes. Shoes with leather or part-leather uppers constituted only 70 percent of U.S. production of nonrubber footwear in 1970, and shoes with leather soles only 16 percent. The other important factor is the large imports of shoes, estimated at almost 30 percent of total U.S. supply in 1970.

Quotas on imports of textiles and shoes were provided in H.R. 18970 that was approved by the House of Representatives late in 1970, but died with the adjournment of the Congress in January 1971. The bill limited 1971 imports from each country to the average quantity of each category of textile and footwear imported during the years 1967-69, and thereafter permitted increases of not more than 5 percent of the amount authorized in the preceding year. The quotas would have expired on July 1, 1976 if not extended by the President.

Industry and labor organizations supported the proposals as a protection against increasing amounts of low-cost imports, while importers opposed the proposals. Imports of apparel had increased from about 5 percent of our total supply in 1965 to 8 percent in 1969. Imports of nonrubber footwear increased from about 13 percent of domestic supply in 1965 to about 25 percent in 1969 and an estimated 30 percent in 1970. The domestic apparel industry with average hourly earnings of \$2.31 in 1969, claims it cannot compete with imports

produced by labor paid as little as 26 cents an hour, as in Hong Kong, or 39 cents, as in Japan. In mid-1969, the average wage of domestic shoe production workers was \$2.29 an hour compared with about \$1.04 in Italy and 56 to 58 cents in Spain and Japan.

Governor Brimmer of the Federal Reserve System has estimated that by 1975 the proposed quota system would raise retail apparel prices about 3.5 percent and shoe prices about 32 percent if this system introduced no change in the trend of total consumption.^{1/} His contention is that protectionist devices such as the quota system hurt our efforts to fight inflation and to raise exports. "Excess demand with rising prices is the basic cause of our trade problem, and we cannot expect to get relief from measures that will keep prices high." He thinks it is preferable to provide retraining and transitional benefits for those who are displaced by competitive forces rather than to maintain employment by use of a quota system.

Brimmer believes the textile and shoe industries in the United States are confronted by structural problems as serious as the threat of increasing imports. He sees the textile industry as in the process of consolidating into larger, more profitable units, a process that is necessary for the viability of the industry in the long run. The largest firms in the industry are not threatened by the rising level of imports. Currently they compare well as to profitability with large manufacturing as a whole. He contends that protection from imports will not preserve the smaller firms facing competition from larger, more adaptable and efficient enterprises. The structural problems in the shoe industry involve much handicraft work, low wages, low productivity, a relatively low rate of investment, and a large portion of its output in small plants. Because of the unevenness of leather materials used and the variety of sizes for each shoe model, technological advance has been slow. Profitability in the shoe industry is relatively low but rising.

Developments in flame-resistant fabrics.--The U.S. Department of Commerce has taken several actions in the past year toward the development of flammability standards, under the revised Flammable Fabrics Act of 1967. In April 1970 it issued a final flammability standard on large carpets and rugs, which becomes law in April 1971. In December 1970 it issued another for small carpets and rugs, which becomes law in December 1971. Rugs and carpets of all sizes meet the standard if, in a controlled test, simulating a lighted cigarette or match, a fire goes out after spreading less than three inches. This standard is designed to protect against the occurrence of fire from such small ignition sources. Research will continue on the behavior of carpets and rugs with rug pads in well-established fires involving drafts and radiation from walls and ceilings. These studies may result in the development of a second-generation standard. Any small carpet or rug not meeting the standard must be so labeled in order to warn the consumer of the possible hazard involved in its indiscriminate use.

^{1/} See paper by Andrew F. Brimmer, Board of Governors of the Federal Reserve System, on "Import Controls and Domestic Inflation," November 11, 1970, 31 pp.



A proposed standard for flammability of children's sleepwear has been issued by the Commerce Department and hearings were held in January. Children's sleepwear includes any nightgowns, pajamas, robes, or related items in sizes through 6x, and fabrics which may reasonably be expected to be used for such garments. The flammability standard requires that children's sleepwear must not ignite and sustain combustion. Specimens selected from the most flammable portion of a garment must meet certain char length and afterflaming time criteria when subjected to a controlled exposure to a standard methane gas flame. All items must continue to meet these criteria after 50 launderings. All items of children's sleepwear must be labeled with instructions on avoidance of those treatments, such as chlorine in laundering, which are known to cause deterioration of the garment's flame resistance.

In June 1970, the Commerce Department issued notices that it is considering flammability standards for mattresses and blankets. In bedding fires, mattresses are an important source of the toxic fumes, reduced oxygen, high concentration of carbon dioxide, smoke, and heat that constitute a hazard to life. Some blankets present excessive risks of flash burning, smoldering, smoke, and toxic fumes.

While the Department of Commerce establishes flammability standards, the Federal Trade Commission (FTC) enforces the Flammable Fabrics Act, and the standards established under it. The FTC tests about 200 items each month, removes from sale the most dangerously flammable items, and publishes notices to warn the public. Actions during the past year were taken against many items, mostly imported, that the FTC found to be dangerously flammable. Included were a number of very sheer fabrics, such as organdy, organza, organette, and bridal illusion veiling and garments made therefrom, and high-pile fabrics, and garments such as chenille berets and scarves made from them. A bill to require pre-sale testing by manufacturers or importers for flammability of products covered by the Act was passed by the Senate, but died with the adjournment of the Congress in January 1971.

To fill the need for a fire-retardant finish which does not change the character of sheer fabrics, finishes developed by USDA are being evaluated by a textile mill for use on lightweight fabrics.

Blends that include 35 percent or more polyester have been difficult to make fire retardant. To date, no satisfactory treatment has been developed.

Directions have been published by the U.S. Department of Agriculture for applying flame retardant treatments at home to washable clothing and household textiles made of cotton and rayon. See "Making household fabrics flame resistant," Leaflet No. 454, 1967; for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for 5 cents.

Other developments in standards and labels for textile products.--The U.S. Department of Commerce has revised procedures for the development of voluntary standards for products so that it may now initiate development without a request from an outside source when it deems this to be in the public interest. Current voluntary product standards, developed at the request of

industry, include body measurements for the sizing of apparel for boys, girls, and women, and patterns for women's apparel. A request has been made by an industry organization that Commerce' National Bureau of Standards process a standard for how to measure garments.

Industry standards for knit fabrics, specifying the acceptable number of imperfections in first quality goods, are expected to be ready in early 1971.

Public hearings were held by the FTC in January and March 1970 on proposed Trade Regulation Rules requiring that labels telling how to care for and clean fabrics be sewn to textile products. A report was submitted to the Commissioners in February 1971 for their final decision.

Product developments.--USDA's Southern Marketing and Nutrition Research Division (SMNRD) is working on a method to improve the whiteness and brightness of cotton durable-press garments by adding selected polymers to the formulations used in the durable-press process. These polymers remain on the surface of the fibers and aid in the absorption of the optical brighteners that are in most laundry detergents. The polymers also improve the smooth drying appearance of the fabric. Because many people find the odor of formaldehyde offensive and a few are sensitive to this chemical, SMNRD has also developed a method to remove with superheated steam the free formaldehyde in cloth processed for durable press.

Research underway at SMNRD has developed a continuous process that simultaneously imparts stretch and wash-wear properties to cotton fabrics, along with dimensional stability. A fabric combining these three desirable properties may have advantages for general use because the "give" should help to overcome some of the strength losses which commonly occur when cotton is crosslinked to enhance wrinkle recovery.

Methods of shrinkproofing wool by the corona and plasma treatments and polymer processes developed at USDA's Western Marketing and Nutrition Research Division are being evaluated by a manufacturer for commercial use with wool top and knitting yarns.

A vapor treatment process, Ameriset,^{2/} for imparting durable press to garments made from cellulosic fibers, including cotton and rayon, is now available. Completed and pressed apparel is placed in a reaction chamber for 20 minutes. A large reactor will be available to apparel manufacturers, and a smaller for retail operations.

A gas treatment for silk yarn or fabric is said to make them wrinkle-resistant. The Japanese developer also claims greater resistance to yellowing, to deterioration from exposure to the sun, and to shrinkage, and improved color fastness. Women's suitings, scarfs, and other items of treated materials are to be marketed starting in June 1971.

^{2/} Mention of specific products and companies does not imply recommendation or endorsement by USDA of those products and companies over others not mentioned.

The market for Qiana, the luxury nylon fiber, is expected to be broadened by price reductions announced in November 1970, the first since the yarn was marketed in mid-1968.

Anti-static nylon tricot has been developed by several producers who report accompanying improvements such as greater whiteness, stain release, and moisture absorbency.

Announcement has been made of the development of WD-2 polyester which is claimed to have an improved hand, soil and stain release, and dyeability, and reduced pilling.

The quality of leather from cattle hides may be improved by research underway at USDA's Eastern Marketing and Nutrition Research Division. New evidence points to the possible inheritance of a defect which causes the leather grain to crack open during manufacture of shoe uppers and other products that require strong leather. Since the defect shows up only after tanning, it causes a loss of \$5 to \$10 million annually. Control of the amount of grease in hides--a cause of poor quality leather--is being sought through diet.

Market developments.--Knit fabrics were estimated to constitute better than a third of all apparel fabrics in 1969, and to reach a half by mid-1970. The present shift to knits is comparable to the earlier shift from natural to manmade fibers for woven fabrics. Double-knits showed the greatest growth--with the 1969 poundage almost double that in 1967. One prediction is that polyester/cotton blends will expand in the next few years to 75 percent of the men's and children's knit apparel that once was all cotton.

Simplicity Pattern Co. estimates that more than 45 million home sewers make some part of their own clothes. This number is the equivalent of about half of all females 12 years and over. Home sewing is especially popular among the younger age group. Reports are that the average age of the home sewer has dropped to 23 and that 6 out of 7 teenage girls sew. Expenditures for fabrics, patterns, and notions amount to about 7 percent of consumer expenditures for clothing and accessories. The use of fibers in retail piece goods increased 51 percent from 1964 to 1969. Piece goods used about 4 percent of the fibers devoted to clothing in 1964 and about 6 percent in 1969.

In summary.--Expenditures per capita on clothing and shoes advanced to an all-time high in 1970, and will probably increase further in 1971. In dollars of constant purchasing power, spending will probably continue in 1971 at the high level reached in 1968-70. The rise of 4 percent in the consumer price index for apparel in 1970 was less than in the previous two years, and may be lower in 1971. Large supplies of fibers, expanded plant capacity, and sizeable imports will continue in 1971 to provide large and varied supplies of clothing and textiles.

Developments during 1970 included several on flammability standards--final standards for large and small carpets and rugs, a proposed standard for children's sleepwear, and notices that standards may be needed for mattresses and blankets. Finishes are being developed to improve the fire-retardancy of fabrics, the properties of cotton fabrics treated for durable press, the shrink resistance of wool knits, and wrinkle resistance of silk. Improvements are being made in the properties of the manmade fibers. The shift continues toward knits of natural and manmade fibers and blends.

Table 1.--Annual expenditures on clothing and shoes

Years ^{1/}	Per capita expenditures		Percent of expenditures for personal consumption		Aggregate expenditures	
	1958 dollars	Current dollars	1958 dollars	Current dollars	Billions of 1958 dollars	Billions of current dollars
1929 -----	149	77	13.0	12.1	18.2	9.4
1930-40 ---	122	51	11.8	10.7	15.6	6.5
1941-46 ---	151	100	11.8	12.9	20.7	13.7
1947-61 ---	144	140	9.0	9.4	23.5	22.9
1962-65 ---	160	170	8.4	8.3	30.6	32.4
1966 -----	185	204	8.7	8.6	36.4	40.3
1967 -----	185	213	8.6	8.6	36.8	42.5
1968 -----	188	230	8.4	8.6	37.9	46.3
1969 -----	189	245	8.2	8.6	38.5	49.9
1970 ^{2/} ---	188	255	8.1	8.5	38.7	52.3

^{1/} Earlier years are grouped on basis of similarity in level of per capita expenditures in 1958 dollars.

^{2/} Preliminary figures.

Source: Department of Commerce.

Table 2.--Annual percentage change in selected indexes of consumer prices

Index	1966	1967	1968	1969	1970
Consumer Price Index -----	+2.9	+2.8	+4.2	+5.4	+6.0
Apparel and Upkeep Index ^{1/} ---	+2.6	+4.0	+5.4	+5.8	+4.1
Men's and boys' apparel ----	+2.7	+3.6	+5.7	+6.4	+4.1
Women's and girls' apparel -	+1.9	+4.6	+5.9	+5.5	+3.8
Footwear -----	+5.9	+4.9	+5.3	+6.1	+5.3

^{1/} Also includes infants' wear, sewing materials, jewelry, and apparel upkeep services, for which separate indexes are not available.

Source: Bureau of Labor Statistics.

UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

AGRICULTURAL SITUATION AND OUTLOOK FOR 1971

Talk by Rex F. Daly

Economic and Statistical Analysis Division

*at the 1971 National Agricultural Outlook Conference
Washington, D.C., 1:15 P.M., Tuesday, February 23, 1971*

Farmers as a group can look forward to strengthening farm prices and incomes this year from currently depressed levels. Gross farm income will increase and net income of farm operators is expected to improve later in 1971. However, realized net income for the year probably will total slightly below 1970. Returns to livestock producers, particularly for hogs, suffered in 1970 as prices fell due to sharply higher output, while feed costs rose. The income position of crop farmers improved in 1970, partly offsetting declines in the livestock sector.

Farmers face prospects for continued large gains in livestock production well into 1971. However, year-to-year gains are narrowing and may be marginal by late summer and fall. Crop producers face more uncertainty than usual: Adjustments to provisions of the new farm program, to a possible recurrence of Southern corn blight, and to a limited supply of resistant seed corn. Even so, a larger output of major crops is now indicated. However, a big plus factor figures in the picture: reduced carryover stocks of all major crops probably will keep supplies in close balance with markets despite prospects for larger crops.

Net income realized per farm, which in 1970 held near the record high, is not expected to change much in 1971. Also per capita income of farm people from farm and nonfarm sources combined may improve modestly again this year. Even so, farm income prospects are less promising than those for the nonfarm population.

The Agricultural Industry

As a basis for appraising the forces which underlie the price and income outlook for agriculture, let us consider the boundaries of the involved "agricultural industry." As you know, farming makes up only part, but an important part, of the agricultural industry. Agriculture directly and indirectly involves activities which extend far beyond the farm gate. Activities related to final product markets, to processing and marketing, and to the important functions of supplying purchased inputs play an increasing role in decision making and in control of assets in commercial farming. As agriculture and its functions become more specialized and integrated, the

line between farming and other related industries will be harder to trace.

Final product markets for food and fiber products make up nearly a third of total consumer expenditures and around a fifth of the gross national product of the Nation. These markets grow and flash back signals regarding the kind and amount of each farm product desired. Responses to these signals show up in production adjustments and decision making in agriculture.

We are concerned about how effectively the processing and marketing system transmits these signals and the price and income shares to farmers; how farmers respond in gearing their production to available markets; and the impact of outlays for purchased inputs on both farm and nonfarm incomes. Finally, how does the value added by farming activities and returns from nonfarm sources divide into returns to labor, capital, and taxes and how much remains for the farm operator and his family? The outlook papers in this conference will deal directly with these various sectors and interrelationships in the agricultural industry.

Demand Growth and Prospects

Growth in population and consumer buying power, the major domestic demand shifters, will continue to expand domestic markets for farm products in 1971. Although gains in the after-tax income of consumers probably will not match the big increases in the first half of 1970, they will likely exceed gains in recent months as well as those throughout the early 1960's. And, if the current apparent stance holds relative to Government expenditures, monetary expansion and lower taxes, consumer incomes could accelerate later this year and in 1972 (figure 1).

In the first half of 1970 consumer disposable income per person exceeded a year earlier by more than 8 percent; by the final quarter the gain was 6 percent. Economic growth prospects for this year suggest a per capita disposable income gain of about 6 percent. But this year less of it will be due to price inflation. Such an income advance is still rapid and will support a strong domestic market for farm products.

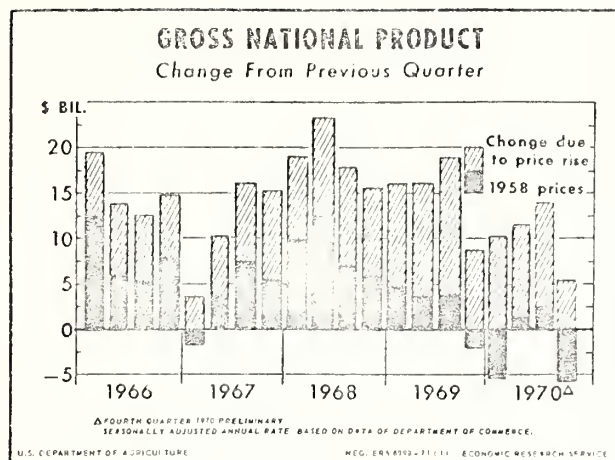


Figure 1

The rapidly expanding Food Stamp Program and other food distribution programs, even though small relative to total food use, have added significantly to the demand for food. The value of food stamps and the number of people participating about tripled during the year ended last November. The Food Stamp Program along with Commodity Distribution, School Lunch, School Breakfast, Special Milk and Special Food Service Programs now represent around 2½ percent of the total consumer food market.

Expansion of special food programs, big increases in the number of participating families, and larger disbursements under welfare programs undoubtedly bolstered markets for food in 1970. These markets are not expected to expand as rapidly this year.

Expenditures For Food

The domestic market for food this year will account for a volume (partly imported) equivalent to 85 to 90 percent of total farm output. Last year food expenditures rose 8½ percent to a total of \$114 billion. The increase matched the rise in after-tax consumer income, holding the share of income spent for food unchanged from the 16.7 percent in 1969 (figure 2).

In 1971 a larger production of food and a smaller increase in retail food prices will slow the rise in food expenditures. An expected increase around 5 percent looks reasonable if consumer's after-tax incomes increase about 7 percent.

Food Prices

Larger supplies of food, particularly livestock products, and prospects for a slower rise in margins for processing and marketing point to much less upward pressures on retail food prices, at least until later this year. Food prices at grocery stores may average only a little above 1970, while the uptrend in prices for food eaten away from home will continue as service costs increase. The combined index of retail food prices for

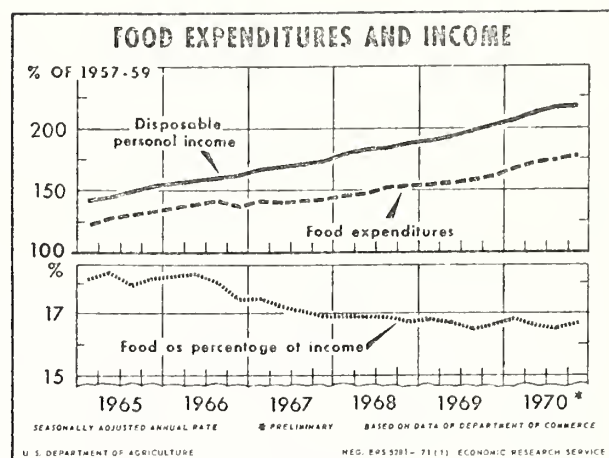


Figure 2

1971 will likely increase only about half as much as the 5½ percent rise from 1969 to 1970.

A sharp drop in the average value of the farm food market basket, such as occurred the last half of 1970 should logically translate into some decline in retail food store prices. But with the largest widening of the farm-to-retail price spread since 1951, the retail cost of the food basket in the closing months of 1970 averaged a little above a year earlier.

Since the marketing spread increased only 2 to 2½ percent in 1968 and 1969, the 7 percent increase in 1970 was huge. Earnings of employees in food marketing rose 6 percent from 1969 to 1970, about the same as gains in 1968 and 1969. But productivity in marketing apparently has been rising slowly in the last few years (figure 3).

Nonfood Expenditures

Consumer spending on nonfood farm-based products continues to grow with population and advances in consumer buying power. The volume of farm products moving into nonfood uses (other than feed and seed) is equivalent to only about 10 percent of total farm output. And a growing share of the raw material inputs for nonfood products comes from synthetics and other nonfarm products.

Spending for alcoholic beverages, responding to advances in consumer income and apparently to taste changes, climbed to a record \$17½ billion in 1970. Another gain of perhaps a billion dollars is indicated for this year. Consumers increased their outlays for clothing and shoes last year to \$52.3 billion, due mostly to higher prices. Over the years, growing population, rising incomes, and fashion changes continue to boost total purchases of clothing and shoes, but per capita use of domestic cotton and wool is trending down because of competition from man-made fibers and imports. Per capita use of tobacco apparently declined in 1970, but consumers spent more. Consumer outlays for tobacco



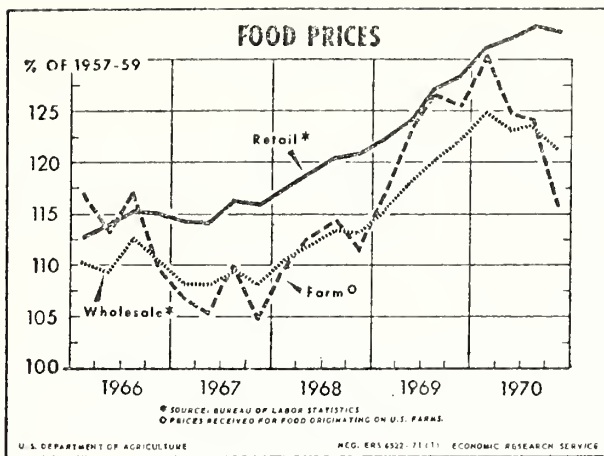


Figure 3

climbed more than a tenth to nearly \$11½ billion. The tailing off in per capita use of cigarettes will likely continue in 1971 because of rising costs, health considerations, and anti-smoking publicity.

Combined consumer expenditures for food and nonfood products primarily of farm origin totaled more than \$195 billion in 1970. Outlays increased 7½ percent from 1969 compared with the 8½ percent increase in after-tax income of consumers. In view of prospects for a bit slower rise in after-tax income, expenditures for these final products may increase around 5 percent from 1970.

Foreign Demand and Trade

The volume of farm products exported in 1970 absorbed about 16 percent of total farm output. Crop exports took 22 percent of total crop output. Data for the 1969/70 marketing year show that exports accounted for more than half of farm sales of rice and soybeans (including oil and meal), about half the wheat, around a third of the cotton and tobacco, and about a fourth of feed grain sales. Exports are obviously important markets for many major crops.

Economic growth and expanding livestock production in Japan, West Germany, UK and some other European countries have expanded commercial markets for grains and soybeans in recent years. Agricultural exports in July-December 1970 jumped 16 percent from a year earlier with wheat and soybeans accounting for most of the gain. For the 1970/71 marketing year, exports will run well above \$7 billion, a record level and up from \$6.6 billion in 1969/70. A poor wheat crop in Europe and generally tighter feed grain supplies have opened new markets for U.S. wheat. As a result, wheat exports may total nearly a fourth above last year's 606 million bushels. Shorter supplies and higher prices for corn may shave off U.S. feed grain exports by 5 to 10 percent from the 21.2 million tons in 1969/70. Cotton exports will run larger because of sharply reduced

foreign free world production and some increase in foreign use (figure 4).

Exports for calendar year 1971 will depend heavily on the size of U.S. crops in 1971 as well as on world supply-demand conditions. Tentatively, export volume this year will likely run a little above 1970 if crops turn out about as now expected.

Farm Output and Price Prospects

A blight damaged corn crop and a smaller 1970 wheat crop cut grain output and reduced total crop production in 1970. Crop prices, especially for grains and soybeans, responded and are running well above a year ago. In contrast, the story for livestock, particularly hogs and poultry, is one of sharply increased output and reduced prices. Favorable prices relative to feed costs through mid-1970 contributed to big gains in broiler production and an upswing for hogs and eggs. As a result, livestock product prices in January averaged 12 percent lower and hog prices more than 40 percent below a year earlier. But crop prices averaged 7 percent higher and, with a relatively tight supply-use balance, average prices for feed grains and soybeans increased more than a fifth from January 1970.

Livestock Supply and Price Prospects

Prospects for livestock products indicate continued large supplies at least through mid-1971. Hog inventories in December, from which most of first half slaughter will come, totaled about a fifth larger. Production of eggs, turkeys and milk will continue larger than in 1970. Cattle on feed and indicated marketings suggest little change in beef production from the early months last year. Broiler production seems headed for a turn down, perhaps a modest one. Although the domestic market continues to expand, big supplies should limit gains in

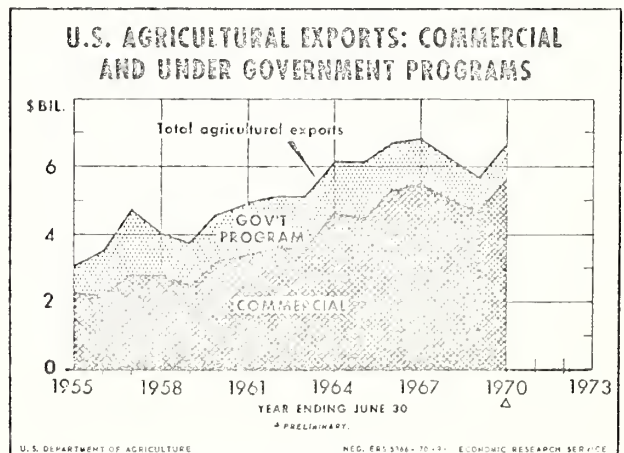


Figure 4

prices for livestock products and hold them below relatively favorable prices in the first half of 1970 (figure 5).

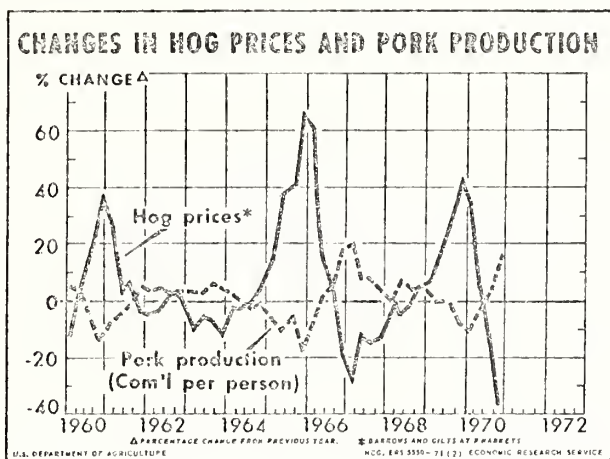


Figure 5

Farrowing plans for spring pig crops signal a turn down in hog production later this year. Production increases for cattle, poultry, and perhaps milk will help to maintain output and end-of-year livestock product supplies may total around a year earlier. If supply prospects develop as now indicated, livestock product prices probably will strengthen from levels in the closing months of 1970. For 1971 as a whole, production will average higher, perhaps by around 2½ to 3 percent. And livestock product prices are expected to average a little lower.

Crop Supplies and Prices

A relatively close supply-use balance for major field crops—feed grains, wheat, soybeans, and cotton—reflects reduced 1970 grain crops and expanding domestic and export markets. Carryover stocks are being drawn down and crop prices in the 1970/71 marketing year may average 5 to 7 percent above a year earlier. Much larger increases in season average prices are underway for corn and soybeans.

Supplies are larger this year for such food crops as citrus, fresh vegetables and potatoes. With bigger supplies, prices for these crops are averaging below a year ago. Freezes late in January damaged tender vegetables and citrus. But prospective output of fresh vegetables is still moderately above a year ago and citrus production is up more than a tenth. Smaller supplies of processed vegetables have strengthened prices.

Preliminary Indications for 1971 Crops

Prospects for 1971 crops, still very uncertain, will remain more difficult to appraise than usual. Producers must weigh impacts of the new farm program and the possibility of a recurrence of the corn blight.

The Agricultural Act of 1971 continues the voluntary land retirement program and requires that farmers "set aside" land in conserving uses. But the new program is designed to give the producer greater freedom in planting decisions once he has set aside the specified minimum acreage and maintained his conserving base. This freedom should facilitate shifts in acreage to crops with most promising returns.

This year may be one in which output plans of producers will reflect the relatively optimistic outlook for soybeans and grains. If farmers respond to the outlook, planted acreage of soybeans feed grains and cotton may exceed planting intentions reported in the January survey, although availability of seed will be a factor for corn (figure 6).

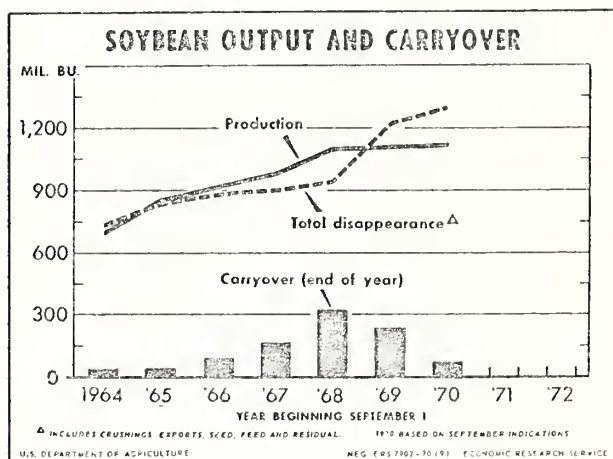


Figure 6

According to the special USDA survey in January, producers intend to plant 126 million acres of feed grains, 6 percent more than in 1970, a tenth more acres to soybeans, and about the same acres of cotton. Winter wheat seedings are slightly below last year, but producers plan larger planting of spring wheats.

Undoubtedly farmers will plant larger acreage to the major field crops this year. But yield prospects remain questionable because of uncertainty about corn blight. However, a sizable increase in crop output now appears the most likely projection for 1971 crops if growing conditions are about average. Producers may well harvest a 1971 crop around 5 percent larger than 1970. Such an increase would imply sizable gains for soybeans and grains and some increase in cotton production. But considerably smaller carryover stocks of these crops this fall will keep supplies in relatively close balance with markets (figure 7).

Farm Income Outlook

Livestock product marketings will continue larger in the first half of 1971, perhaps by 3 or 4 percent. However, gains will narrow later in the year, if hog

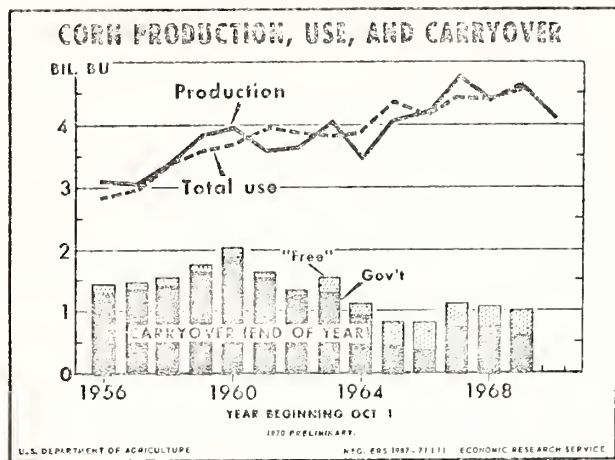


Figure 7

production declines as indicated. An expanding domestic market will strengthen prices, particularly later in the year, probably enough to hold livestock receipts near the record returns of last year.

Crop receipts will increase sharply from 1970. In addition to larger 1971 crops, continued relatively tight supplies for major crops will likely hold average crop prices above 1970.

Despite an estimated decline in government payments, gross farm income projected for this year exceeds last year's record \$56.2 billion, be around a billion dollars (figure 8).

Production Expenses

Farm production expenses increase inexorably, due primarily to rising prices for inputs. Although this trend will continue, prices paid by farmers this year probably will not match the 4½ percent increase in 1970. Outlays for feed purchases and overhead costs probably will run larger. Interest rates will recede though borrowing may increase. The farm wage bill may increase further as rising wage rates more than offset the decline in hired workers.

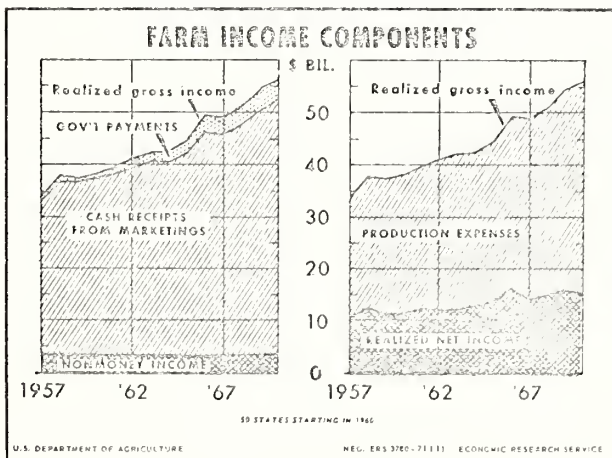


Figure 8

The increase in farm production expenses probably will exceed the expected advance in gross farm income. Thus, a further small decline in total net income is now indicated for 1971 even though the farmer's income situation probably will improve as the year progresses.

Economic Position of Farm People

The economic position of livestock producers, particularly hog raisers, slipped in 1970 primarily because of the big increase in hog production. But incomes of crop farmers improved due in part to a blight damaged 1970 corn crop. As a result, realized net farm income declined slightly from the near-record 1969 level. The small decline in farm income was offset by a gain in the income of farm people from nonfarm sources. With the declining farm population, the per capita income position of farm people improved in 1970, gaining slightly more than the per capita increase for nonfarm people.

Changes in aggregate net farm income, although an important indicator of the economic position of farmers, do not give a complete picture. This is particularly true for an industry like agriculture where demand expansion is relatively slow and productivity advances are rapid. Similarly, a ratio of prices received to prices paid by farmers is an indicator of the economic position of farmers, but not an accurate one especially over a period long enough for big changes in efficiency, technology and other factors. Perhaps a few charts will help to give perspective and illustrate some of the issues involved.

Let's first look at farm price and cost trends since 1947-49, a favorable period for agriculture. Prices received by farmers in January averaged the same as the 1947-49 average after a substantial rise during the 1960 decade. But the index of prices paid by farmers, including interest, taxes and wages averaged 60 percent above 1947-49. On the 1947-49 base, the ratio of prices received to prices paid in January this year was 63 (figure 9).

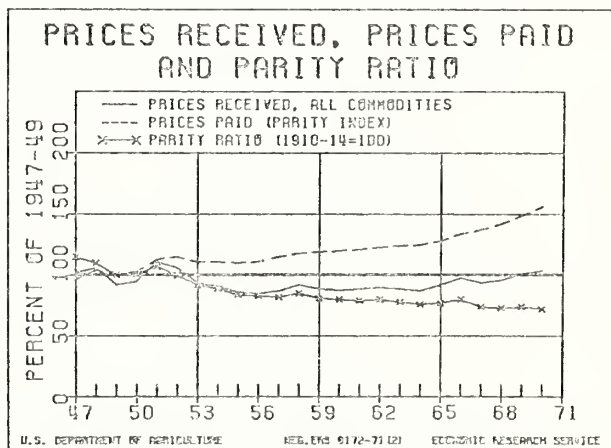


Figure 9

However, over the same period, the farm gross product per worker nearly tripled, while the private nonfarm gross product per worker in 1970 was less than double the 1917-49 average. The rapid increase in productivity per worker in farming reflects greatly increased use of expensive capital and land resources. These trends suggest a much more rapid increase of productivity in farming. But part of the gain, it should be noted, is due to changes in the size structure of farm units and the resulting rapid decline in the number of smaller, less efficient farms (figure 10).

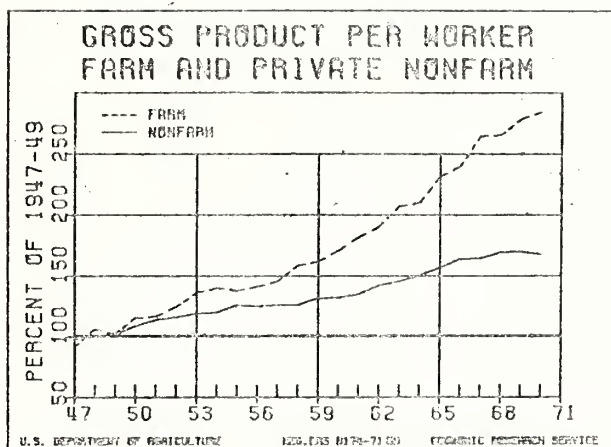


Figure 10

The rise in realized net income per farm operator family also reflects in part big changes taking place in the structure of agriculture. Net income per farm in 1970, of nearly \$5,400, was about the same as the record level in 1969, and little change is indicated for 1971. But average net income per farm for all farms increases more rapidly than it does for any farm-size class. This seemingly strange statistical quirk may require a moments reflection. It is quite logical, however, for average income per farm to rise more rapidly than for any size class when structural change moves many of the small low income farms into larger size classes and, at the same time, greatly reduces the total number of farms.

In 1969, for example, net farm income per farm was 84 percent larger than in 1960. For the largest farm sales class—\$40,000 and over—net farm income per farm increased 45 percent. In this connection it should be noted that the largest sales class in 1969 accounted for more than half of total cash receipts and the two largest size classes—sales above \$20,000 per farm—accounted for nearly three-fourths of total cash receipts (figure 11).

Income per farm operator family from all sources more than doubled from 1960 to 1969. The increase for farms with sales of \$40,000 and over was 56 percent. Income payments per nonfarm family also increased 56 percent from 1960 to 1969.

Income per farm operator family by value of sales classes

Farm sales class and income source	1960	1969	Percentage increase 1960-1969
	Dollars	Dollars	Percent
Realized net farm income (all farms)	2,962	5,437	84
\$40,000 and over	18,955	27,503	45
\$20,000 to \$39,999	8,652	10,466	21
\$10,000 to \$19,999	5,368	6,481	21
\$5,000 to \$9,999	3,305	3,630	10
\$2,500 to \$4,999	1,961	2,122	8
Under \$2,500	850	1,082	27
Off-Farm Income (all farms)	2,140	5,256	146
\$40,000 and over	2,177	5,464	151
\$20,000 and over	1,678	3,241	93
\$10,000 to \$19,999	1,258	3,141	150
\$5,000 to \$9,999	1,573	4,488	185
\$2,500 to \$4,999	1,849	4,895	165
Under \$2,500	2,731	7,011	157
Total income (all farms)	5,102	10,693	110
\$40,000 and over	21,132	32,967	56
\$20,000 to \$39,999	10,330	13,707	33
\$10,000 to \$19,999	6,626	9,622	45
\$5,000 to \$9,999	4,878	8,118	66
\$2,500 to \$4,999	3,810	7,017	84
Under \$2,500	3,581	8,093	126

Trends in income per farm show great improvement in the past 10 to 15 years, but they also show that agriculture is no gravy train when compared with incomes in the nonfarm sector of the economy. Personal income payments received by farmers and nonfarmers provide a reasonable basis for comparison and show as well the contribution of farm earnings from nonfarm sources (figure 12). Compared with the favorable 1947-49 base period for agriculture, per capita income payments to farm people from farming in 1970 totaled more than 2¼ times the 1947-49 average. But income payments to farm people from nonfarm sources increased more than 5-fold. As a result, per capita income payments to farm people from all sources in

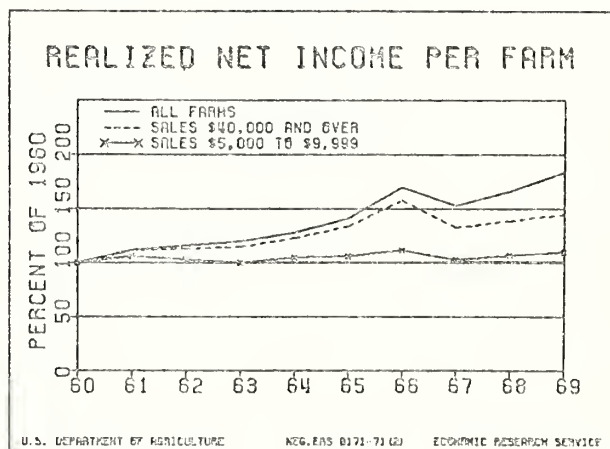


Figure 11



1970 was nearly 3½ times the 1947-49 average. In the same period, per capita income payments to the nonfarm population from all sources increased a little more than 2½ times (figure 13).

But the farm population still has some way to go to match nonfarm incomes. On an after-tax basis, per capita disposable incomes of the farm population from all sources increased further in 1970 to 78 percent of the per capita after-tax income of the nonfarm population.

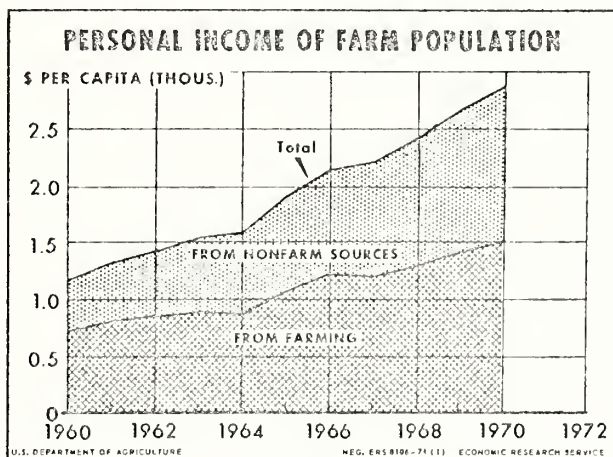


Figure 12

This ratio compares with 75 percent in 1968 and 77 percent in 1969.

Realized net income per farm may change little from the highs in 1969 and 1970, as declining farm numbers offset the indicated small reduction in aggregate net income. But with a sizable gain likely in the income of farm people from nonfarm sources, per capita after-tax income of the farm population will likely increase again in 1971.

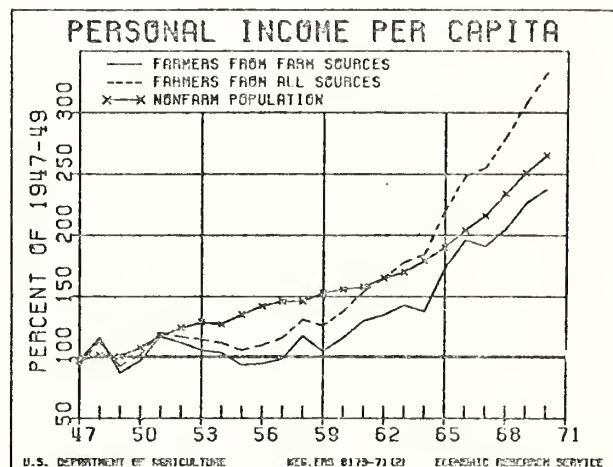


Figure 13



UNITED STATES DEPARTMENT OF AGRICULTURE
Foreign Agricultural Service

WORLD AGRICULTURAL SITUATION AND OUTLOOK FOR U. S. TRADE

Talk by Raymond A. Ioanes
Administrator, Foreign Agricultural Service
at the 1971 National Agricultural Outlook Conference
Washington, D. C., 2:00 P.M., Tuesday, February 23, 1971

All indications point to a "triple" record for U. S. agricultural exports in this current fiscal year.

First: The value of total shipments will approximate \$7.4 billion--an all-time high record by a margin of \$600 million. Incidentally, exports in December set a record for one month when they hit \$740 million.

Second: Sales for dollars will be a record \$6.4 billion. This means that agriculture, on the dollar account, could earn a favorable balance of about \$700 million. That's the amount by which sales for dollars should exceed the value of agricultural imports.

Third: The volume represented by exports of \$7.4 billion will be about 5 percent above the volume of the previous record export year.

Commodity outlook

Soybeans and wheat are playing major roles in this very encouraging export situation.

Soybeans: For soybeans and products, a record year is following on the heels of a previous record year. Exports will be up on both a volume and a value basis. The value total will be an almost incredible \$1.8 billion.

Wheat: There has been a sharp upswing in wheat exports. Shipments currently are running about 100 million bushels above last year's level. The final total for 1970-71 is expected to be between 725 and 750 million bushels. This will be our second best export year.

We expect exports of feed grains to be down by about 1.4 million short tons. Despite the decline, this is a heartening performance in view of our own supply situation.

Cotton exports will be up from 2.8 million bales last year to about 3.5 million. Foreign production and stocks are down and we are helping to fill the gap. It is too bad we don't have more cotton. Our supplies this year are just too small to meet all the demand.

On rice, we will about hold our own, volumewise, with reduced commercial shipments being offset by larger P.L. 480 movement.

Fruits and vegetables, on a dollar basis, will show exports about as large as a year earlier. There will be decreased shipments of canned fruits and canned vegetables, but exports of fruit juices, notably orange juice, are expected to be larger despite freeze damage to the U. S. crop.

U. S. exports of tobacco are expected to be off about 10 percent, on a poundage basis. Other exporting countries are pushing into world markets with tobacco of lower quality but which costs less.

The export value of livestock products will be down about 2 percent from last year's \$609 million. A decline in pork shipments to Japan and Canada will account for most of the drop.

And so it goes. There are ups and downs. But this year the ups have it.

The pull of the market

When I think of our export trade, I think of it in terms of what I call "the pull of the international market." As we have observed, the pull varies. A few years ago there wasn't enough market pull. But this year, the market is exceptionally strong.

I see the pull of the market reflected in current figures on prices. Soybean prices at Rotterdam are the highest in 5 years in spite of the fact that the United States in 1970 harvested the third bumper soybean crop in a row. Prices of wheat and feed grains at Rotterdam are the highest in many years. Prices of beef and beef cattle are up all over the world at a time when beef production is on the upgrade.

Today I would like to explore with you some of these developments.

Soybeans: The pull of the international market explains our success in getting favorable prices and good cash returns from soybeans in spite of the fact that we are producing larger and larger crops. Since 1955 we have increased soybean production by 764 million bushels. Of this increase, on a soybean equivalent of meal basis, we have exported over 500 million bushels, or about two-thirds of the increase.

The pull of the market can be seen in the acreage being harvested for export. In 1955 we shipped the soybean production from 4 million acres-- and by 1970 from over 23 million. That latter figure represents 55 percent of total soybean acreage. What more convincing evidence could there be of the strength that comes to our agriculture from the international market?

Our success in the soybean export market traces to four basic factors, which are:

1. Increasing prosperity and purchasing power around the world.
2. Duty-free entry for soybeans in major markets.
3. Prices determined by the market. We do not subsidize soybean exports.
4. The reliability of the United States as a supplier.

Because of our reliability as a supplier, we have increased our share of the world market for oilseeds, cake, and meal from 44 to 55 percent between 1965 and 1970. The world is expecting us to keep up the good work. Our farmers already have indicated their intention to step up acreage in 1971. We need that increase--and so does the rest of the world.

The pull of the soybean market is coming from all directions. Exports are increasing to such major markets as the European Community, the United Kingdom, Spain, Canada, and Japan. But we also are pushing into Eastern Europe with our oilseed meal and oil, and into such far-off places as Taiwan and South Korea. The pull will be increased by the opening of new soybean crushing mills in the United Kingdom, Portugal, Greece, and Iran.

Wheat: The pull of the market is seen in wheat prices at Rotterdam that are at the highest point in 9 years--and at a time when commercial wheat exports are the largest in our history.

Western Europe is taking more wheat. Stocks in the European Community were down by about 100 million bushels at the start of the marketing year, reflecting not only smaller production but also heavy use of subsidies last year to move wheat into domestic feed use and exports. Eastern Europe is importing more U.S. wheat. Japan also has stepped up its imports from us--a continuation of a trend that has been apparent for several years.

On the supply side: the United States, of course, has wheat to export. Canada and Australia, although they sharply reduced wheat production in 1970, have substantial carryover stocks. But Argentina's wheat crop is the smallest in 10 years and will not be a significant competitive factor in coming months.

Feed grains: The price of corn at Rotterdam almost seems to be saying, "Look what the pull of the market can do." The current price of corn at that Netherlands market is the highest since 1956-57--and yet corn is one of the commodities subject to variable import levies. Prices of other feed grains are sharply above levels of other recent years as the demand for feed continues strong from Europe, both West and East, Japan, and other countries that are developing vigorous livestock economies.

But the market pull has been modified somewhat by price relationships, which have been influenced strongly by effects of the Southern corn leaf blight. This disease resulted in a reduced corn harvest and higher corn prices. The price effect has been transmitted to other feed grains. Although corn exports to date are lagging behind last year's totals, shipments of barley, grain sorghums, and oats are up.

Beef and beef cattle: Last year we called attention to the pull of the market for beef and veal. Demand continues strong, tracing primarily to increased prosperity, heightened purchasing power, and the new ability and desire of people almost everywhere to upgrade their diets by consuming more beef.

Beef production continues to push upward--not spectacularly but steadily. For the three major importing areas as a whole--the United States, the European Community, and the United Kingdom--beef and veal production has increased by 11 percent over the past 5 years. For the major exporting countries the gain has been 18 percent.

Expanded production has been absorbed at rising prices, another indication of what I call pull of the market. Prices to cattle producers are up sharply in all the exporting countries. Prices are up in Australia, New Zealand, Canada, Mexico, Ireland, and the Central American countries. Cattle prices in Argentina are more than double what they were a year ago. Prices are strong in the European Community, the United Kingdom, and, as we know, they have improved in the United States.

The situation in Argentina deserves special mention.

Argentina normally is the world's largest exporter of beef and a key factor in the world meat picture. Last year it appeared that Argentina would stay big in terms of volume. Exports were unusually large in 1969 and all the indications pointed to relatively large exports through 1970 and up into 1971.

But Argentine beef has not been coming out the way we thought it would. Exports have shrunk markedly in recent months, with domestic consumers taking meat away from the export market. Prices are sharply higher. Prices of export type steers reached a high--in U.S. terms--of \$20.53 a hundred pounds the last week of January 1971, which was more than double the \$9.24 per hundred a year earlier.

Argentina's situation is complex. It reflects inflation, strong demand, and, possibly, "overkill" in 1969. The overall picture isn't too clear. But one thing is certain: The reduced volume of beef exports now coming out of Argentina has added strength to beef prices in many world markets. It is another example of the close interrelationship of world trade forces.

The pull of the beef market in Canada has been very strong, as we have learned in recent weeks, when there was an unusual movement of U.S. cattle to that country. I say "unusual" because the United States, though a heavy importer of feeder cattle from Canada, normally sends relatively few animals north--and most of them for breeding. For example, in the first 10 months of 1970, U.S. cattle shipments to Canada averaged only 800 head a month--about par for the course. But late in the year, U.S. prices dipped; in November the weekly average of Choice steers at Omaha dropped below \$27 a hundred pounds. Exports to Canada promptly picked up. The total for November, largely fat and feeder cattle, was about 13,000 head. In December, almost 42,000 head moved north. But U. S. prices have been strengthening since mid-December and shipments to Canada have now virtually dried up.

To prove that the pull of the market does not necessarily follow any particular ideology, the Soviet Union which last year bought red meat and poultry in the Western market is back again for needed supplies. The Russians have bought 50,000 long tons of beef and mutton from Australia for delivery later in the year. There are indications that this buying will be expanded.

We have information that Russia has contracted for 74 million pounds of poultry meat, principally whole broilers, with delivery to be completed by the end of this coming June. This purchasing is considerably ahead of last year's volume, which amounted to about 60 million pounds. The principal suppliers this year have been the Netherlands, France, and West Germany.

But the Soviet Union apparently wants to produce more of its own beef. A Russian delegation has been in this country to look into the purchase of beef cattle breeding stock. It appears that they may be interested in substantial purchases to be made as part of a development program running from 15 to 20 years. The delegation also has carried on exploratory talks in Canada. No purchases have been reported to date. But if the Russians do buy in substantial volume, this will be another strong indicator of the strength of beef in world markets.

The pull of the market for beef has been held in check by importing areas and countries through various types of agricultural and trade devices. The European Community's common agricultural policy restrains imports of meat through use of a variable import levy system. Sales to the United Kingdom have not been encouraged by its system of producer payments. Japan maintains tight quotas on beef. The United States, which has felt a "ricochet effect" from the systems of other importers, has instituted a voluntary restraint program under which the major supplying countries have voluntarily agreed to put limits on what they send us. The program has worked reasonably well.

As long as other importing countries use programs to hold the pull of the market in check, we will need a program of our own as an offset.

But suppose all the countries had the same protective level that we have--3 cents a pound. I am not sure, if every country went to that low protective level, that we would need a restraint program.

The pull of the market is strong now, and we can be glad. But we must understand its makeup. The pull of the market is the net effect of many factors--some long-term, some transient--each exerting a force at some period of time. A major long-term factor is the economic growth that is giving increased per capita purchasing power. Operation of this factor is most apparent in Japan, perhaps, but its influence is being felt in some degree almost everywhere else. On the other hand there is protectionism, also, long-term, which restrains the pull of the market. On a shorter-range basis are such things as the effect of weather, decisions of Canada and Australia to restrain wheat production, the appearance of Southern corn leaf blight, and many others. All these factors, long and short-range, we must study and consider in appraising the outlook for trade in the period ahead.

Enlargement of the European Community

I want to comment now on enlargement of the European Community.

Because I have covered in the past our major trade problems with the Community, I won't dwell on them in detail today. Our main difficulty with the Community has involved the variable levy commodities--notably the grains. We are getting some relief on them this year, as I have noted earlier, largely because the Community's own supplies are down.



Last year, however, the trading world saw a very heavy use of subsidies by the Community to move into export the surpluses that had been stimulated by high protected prices. Last year the Community had agricultural exports of about \$3 billion. To reach that total the Community spent about \$1 billion in export subsidies. And it should be noted that for some commodities, such as grains, sugar, and dairy products, the size of the subsidy was as large as the value obtained in world markets. Subsidies on this scale put our commodities that are subject to the levy system up against what I call "double jeopardy." By double jeopardy I mean that imports of some of our products by the Community were reduced because of the variable levy system. But the proceeds of the levies were used to subsidize Community exports, thus hitting us hard a second time in third-country markets.

That use of subsidies cost all the non-Community supplying countries very dearly. Some of the other suppliers--Canada, Australia, and New Zealand, for example--have joined the United States in calling for reform. Reform is still needed, despite the measure of relief we are getting this year. That relief, I am afraid, will be only temporary. When supplies increase again--and they will--we and the other exporting countries will again face "double jeopardy."

The United States also has been concerned about the Community's preferential arrangements with the Mediterranean countries, which are hurting our trade in citrus fruits. Nor do we like the Community's buyers' premiums to its own tobacco producers, because they impair bound tariff concessions given us in the past.

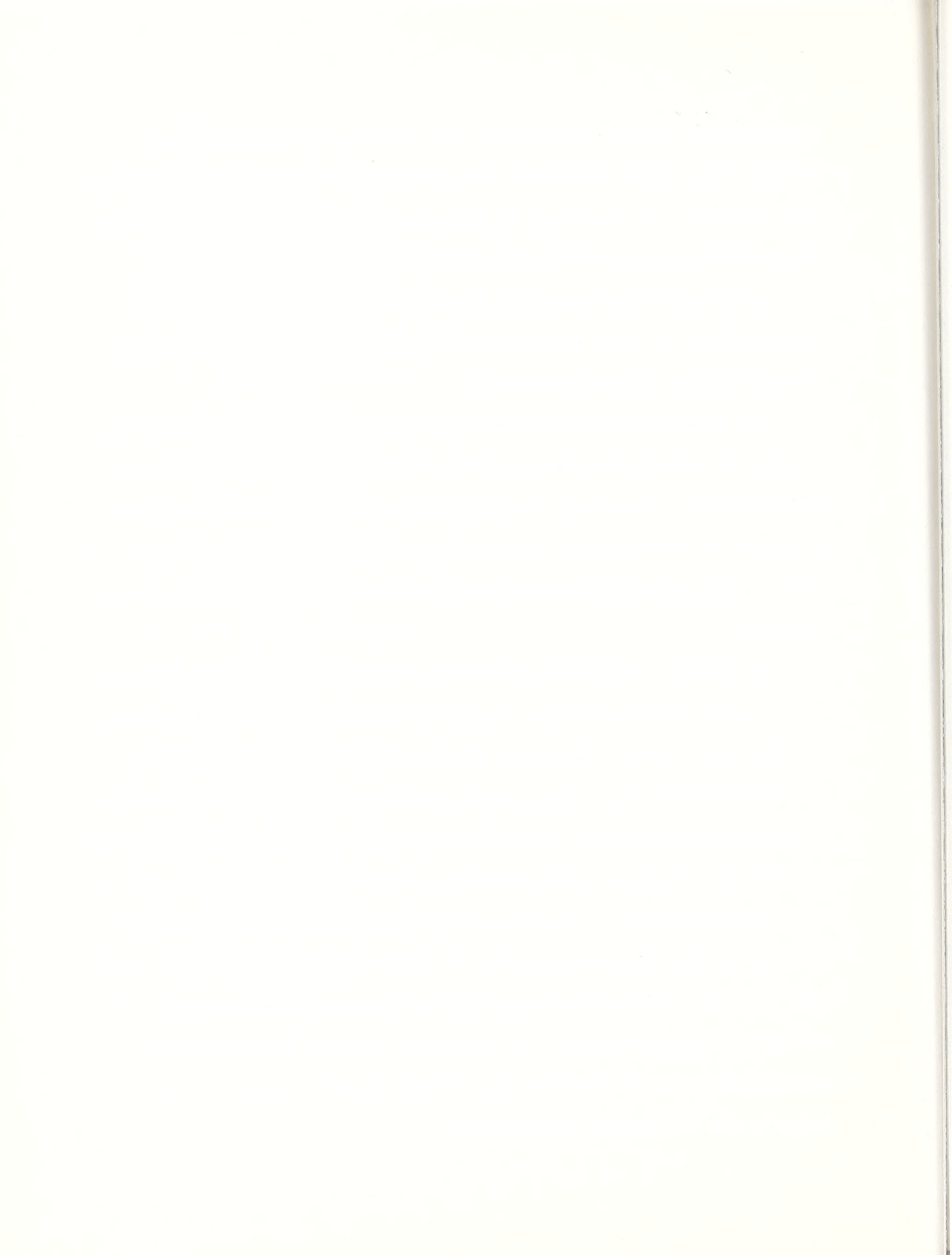
We are asking the Community to change its practices to bring them into conformity with the rules of the General Agreement on Tariffs and Trade.

Although many serious discussions have been held on these subjects between the parties concerned, the Community has not met our objections. The next step, and that step is just about here today, will be to carry the problems to the contracting parties of the GATT.

Now there is the matter of enlargement. I refer to the bid of Great Britain to enter the European Community. Ireland, Denmark, and Norway also are seeking membership.

Let me note that the United Kingdom's protective level, both with respect to tariffs and price supports, is generally lower than that of the Community. Therefore, looking ahead to entry, our objective must be a bargain in between these two levels. In some cases, the resolution of some of our continuing problems with the Community would help to meet this objective.

For example, the United States has urged the Community to reduce its price levels for grain by \$15 a ton. We have done so primarily because at existing price levels, Community grain production has been expanding, and net imports declining. Lower grain prices would not only slow down grain production expansion, but would also encourage greater output and consumption of livestock products. That reduction would also result in Community prices about midway between the existing United Kingdom and Community levels. It would go a long way toward solving the trade problems that we will have to deal with when the terms of entry for the enlarged Community come before the GATT for consideration. It would also have the incidental effect of reducing the cost of entry for the British, which is today the outstanding issue in the enlargement negotiations.



The United States must persist in its efforts not only to keep trade channels open but to broaden them. The European Community already is our largest single market for farm products. An enlarged Community would be of even greater importance to American agriculture.

The debate on U.S. trade policy

Last year the 91st Congress considered a modest trade bill proposed by the Administration. The bill that finally emerged was greatly enlarged. It contained added provisions that would have signaled a change in our historic liberal trade posture. Time ran out, however, and the enlarged package was not enacted. Similar legislation has been introduced in the current Congress.

There undoubtedly will be a repetition of some of the debate that took place last year on the trade bill. The scope and intensity of that debate reflected many factors. It reflected the spread of improving technology and efficiency; the development of regional blocs that are preferential by their very nature; the effects of inflation and unemployment; the safeguarding of the legitimate interests of U.S. labor, industry, and agriculture. The debate reflected to some degree a basic questioning of the overall philosophy of liberal international trade--a doubt as to whether the United States is getting reciprocity for its efforts to expand world trade through liberal principles.

In this debate agriculture remained a strong supporter of a continued liberal trade stance for this country. For agriculture, liberal trade

makes sense. The \$7.4 billion export market we are moving toward this year testifies to that. And let me say in this connection: -- I am very sure that if this country should embrace a tight protectionist policy, there would be counteraction against our agricultural exports. This is a point that agricultural people should have in mind as the debate on trade begins again this year.

In conclusion

In conclusion, I would observe that the problems we face in trade policy are stubborn ones. They will be with us for a long time. They will continue to influence the development of trade proposals in and out of Congress--and inside and outside of the country.

In agriculture, difficult questions will continue to be raised by the critics of liberal trade. The best answer will be our aggressiveness in producing results in our export trade. There was a time, in the aftermath of World War II, that the United States could carry a disproportionately large share of responsibility for the furtherance of liberal trade objectives. Now the other countries of the developed prosperous world must increasingly recognize that times have changed, and that more of the responsibility rests on their shoulders. They must increasingly realize that the new protectionism in the United States has been fed by their own protectionism. This is especially true with respect to their agriculture.

Our foreign friends are showing some signs of a change in attitude. But they need to do more--and we must keep on reminding them of that need. We must impress them with our own conviction--a conviction that liberal trade in the world is well worth saving.

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS
Washington, D. C.

FOR RELEASE TUESDAY P.M.
FEBRUARY 23, 1971

Remarks of
Herbert Stein
Member, Council of Economic Advisers
at the
NATIONAL AGRICULTURAL OUTLOOK CONFERENCE
Department of Agriculture

February 23, 1971

- - - - -
\$1065 BILLION AS GOAL AND FORECAST

A little over three weeks ago the Budget Message and the Economic Report came out with projections that the gross national product in 1971 would be \$1065 billion. The figure was an instant sensation. It immediately became, as far as I can recall, the best known GNP number in history. The only rival would be the \$100 billion figure that Franklin Roosevelt once used as the goal for the recovery of the economy in the late 1930's.

The immediate reaction to the \$1065 billion was not applause and approval. Rather it was shock, skepticism and suspicion. What was sensational about the figure was that it was, or seemed to be, far from the standard forecast of most economists not only in its magnitude but also in its meaning and method of derivation.

I think the number is important both for this year's economic outlook and for the making of economic policy in the future. Therefore, I think the best service I can perform today is to discuss this figure.

Let me say at the outset that the shock at the \$1065 billion figure was in some measure due to cultural lag. This was the first official GNP forecast in excess of one trillion dollars. People are not used to how large all the figures have become. It is only a little over 10 years since the GNP passed \$500 billion and a little over four since it passed \$750 billion. A total of \$1065 billion, an increase of \$88 billion from the previous year and a discrepancy of \$15 or \$20 billion between our forecast and the conventional forecast all seemed enormous numbers. But in fact, they are not enormous numbers. The forecast increase in GNP is 9% from 1970 to 1971, compared with an average annual increase of 6.4% in the 20 years from 1950 to 1970. The increase in real output is about 4.5%, compared with 3.6% average annual increase in the past two decades. The difference between our forecast and the standard forecast is 1-1/2 to 2% of the GNP, which is not much beyond the average error of the standard forecast in the past.

Still, I do not want to minimize what we are saying or its difference from the consensus forecast. Without regard to the specific GNP numbers, we are aiming at and forecasting a path for the economy



that will significantly reduce the rate of unemployment during 1971. The consensus forecast is of a languorous revival that would leave unemployment at the end of the year around the 6% with which the year opens. That indicates the real issue. Should we, can we, will we reduce the unemployment rate during 1971, and how? The Administration is saying that we should, can and will -- by expansive fiscal and monetary policy supplemented with moderate direct restraints on particular prices and wages.

We are saying four things about the \$1065 billion.

1. We believe a path of the economy which amounts to a GNP of \$1065 billion in 1971 is a desirable path.
2. Achievement of the \$1065 billion GNP in 1971 is the Administration's goal.
3. We believe that achievement of the \$1065 billion GNP is feasible.
4. We believe that the goal will in fact be achieved.

I would like to discuss each of these points in turn.

Is \$1065 billion a desirable outcome?

I have already indicated half of the reason for considering a \$1065 billion GNP in 1971 as a desirable outcome, certainly more desirable than the more commonly forecast outcome of \$1050 billion. That half

of the reason is the effect on unemployment -- the achievement of a significant reduction of the unemployment rate rather than continuation of the present rate. However, this invites the question, why not \$1070 billion or \$1075 billion? Wouldn't they reduce unemployment even more? The answer, of course, lies in the inflation problem. We believe that \$1065 billion is better than, say, \$1055 billion or \$1075 billion, because it is more likely to be compatible with both a reduction of the inflation rate and a reduction of the unemployment rate.

If we get a moderate reduction of the inflation rate during 1971, say to 3-1/2% by the end of the year, the \$1065 billion GNP would mean an increase of real output sufficient to reduce unemployment to about 5% by the end of the year. Such a rate of increase of output and reduction of unemployment would, in turn, be consistent with and help to bring about the moderate reduction of the inflation rate. The pace of the increase of output and reduction of unemployment would not exceed what had been achieved in previous recoveries when the inflation rate continued to subside. We would have had two years of unemployment in the neighborhood of 5%, that is to say, two years of slack in labor markets. We would have had two years of pressure on employers to raise productivity and reduce costs. These circumstances would,



in our opinion, lead to a continuation of the reduction of the inflation that has already begun. And the decline of unemployment that would go along would achieve a great deal, even if not everything that would be desirable, on the unemployment front. It would puncture the general feeling of insecurity that results from a prolonged high rate of unemployment, it would stop the rise in the number of long-term unemployed and it would, of course, make progress towards a much lower overall rate.

Achievement of a larger GNP than \$1065 billion might get the unemployment rate down faster. But if the GNP were significantly larger -- and it is no use talking about one or two billion dollars anymore -- we think the inflation risk would be greatly increased -- to the point where the inflation rate might be rising rather than falling. On the other hand, rates of economic expansion significantly below the \$1065 billion GNP path would probably worsen the unemployment performance substantially without much gain on the inflation front. We are in a situation where much of the ongoing inflation results from the continuing momentum of past developments and will respond more to the passage of time than to current economic conditions, so that we can have a more vigorous economy, up to a point, without reviving inflation.



Of course, we are in a somewhat new part of the economic map, and no one can honestly claim to be sure of the relations among output, unemployment and prices that will exist in the next year or two.

Obviously there is some rate of expansion that is too high and some rate that is too low. Recognizing the fallibility of such judgments we have concluded that the \$1065 billion path would be desirable. Our feet are not frozen in concrete and obviously policy will have to be adapted to the lessons of experience as they emerge. But we should not allow our anxiety to be the father to our thought, and we should not exploit the popular anxiety by crying that the sky is falling just because policy reaches for an orderly expansion.

In order to help assure that the inflation rate moves down as the real economy moves up, the Administration has become increasingly active in using its influence to restrain directly price and wage increases in particular industries. Our current wrestling with the construction cost problem is the latest in a series of steps running from lumber, to copper, to oil, to steel, and including the Inflation Alerts, the Purchasing and Regulation Review Board, the National Commission on Productivity and the internal reviews by the Cabinet Committee on Economic Policy. Without any grand announcement, we



have now taken on a large number of the ingredients of what is loosely called incomes policy. Nevertheless, resolutions continue and will continue to be solemnly passed urging us to adopt an incomes policy.

\$1065 billion as target

We are saying more than that \$1065 billion GNP in 1971 is a desirable outcome. We are saying that the Administration takes this as a target and recommends it as a target for the rest of the Government. This itself is an important fact and will influence the outcome, regardless of whether or not the Administration is right about its being a desirable outcome.

The Employment Act of 1946 requires the President to describe the path of the economy that will best meet the objectives of the Act, namely "maximum employment, production and purchasing power." The figure of \$1065 billion GNP for 1971 may be taken as a short summary of the Administration's view of the economic performance that would move towards those objectives most satisfactorily. The Act also calls for the use of all of the resources of the Government, and not just of the Administration, to achieve those objectives. The Administration understands that to call for the use of the resources within its control to achieve the \$1065 billion path -- again regarding



\$1065 billion as a shorthand description for a vigorous expansion path significantly reducing unemployment during 1971.

Is \$1065 billion feasible?

It is sometimes said that \$1065 billion is a fine target but is too optimistic. I must say that I do not look at the proposition in this way. I would not regard the target as a good one if there were not a reasonable prospect of achieving it, because I do not believe it is the proper business of Government to generate expectations which will not be realized.

More important, I don't think our attitude towards the \$1065 billion can be located on the scale from optimism to pessimism. If we were saying that the \$1065 billion would come about spontaneously or be produced by forces beyond the reach of Government policy, that might be judged optimistic. But in fact, although that might conceivably happen, we are not expecting and do not count upon spontaneous generation of \$1065 billion. What we do count upon is the feasibility of the goal if there is determination to use the available policy instruments.

We believe, as we have said many times, that the \$1065 billion goal can be achieved by the President's budget and a complementary monetary policy. The President's budget is clear enough. It will run

a deficit of \$18.6 billion this year and \$11.6 billion in the next fiscal year. If the economy were operating at full employment in both years the budget would be balanced in both years. As we see it, this budget policy will support the expansion of the economy at the desired rate but is not sufficient by itself to produce the desired expansion. We depend heavily on the other part of the formula, namely "complementary monetary policy."

The Administration has not undertaken to specify what a complementary monetary policy is in the sense of specifying a rate of growth of money, or credit, or any other quantity. It is the business of the Federal Reserve to determine such things. Our goal is a certain growth of GNP, not a certain growth of money. However, what is clearly implied in the Administration's statements is that there is a complementary monetary policy. There is a monetary policy which when added to the fiscal policy will reach the goal.

To avoid being distracted by irrelevancies we should make certain qualifications at once.

First, we do not believe that the GNP is determined by money alone.



Second, we do not believe that there is a one-for-one relationship, such that a dollar of money yields a dollar of GNP or a one percent increase in money yields a one percent increase in GNP.

Third, we do not believe that the relation between money and GNP is invariant -- the same in 1971 as in 1951.

Fourth, we do not believe that the relation between money and GNP is precisely known.

Fifth, we do not believe that the effect of money on the GNP is instantaneous.

All of these things would have to be said, and would be significant, if we were talking about reaching a GNP of \$1045 billion or \$1025 billion, just as much as when we are talking about a GNP of \$1065 billion. They are the "what goes without saying" of monetary policy, or of fiscal policy too for that matter. They mean that error in the achievement of any total GNP target is inevitable, but not necessarily greater in achieving \$1065 billion than in achieving a smaller number.

These qualifications do not deny the central propositions that the GNP will be larger in 1971 the larger is the money stock, that this will be true for GNP's of \$1065 billion or higher, and that the \$1065 billion GNP will be the most probable outcome if policy aims for it.

The critical point, as I see it, is that within the range of interest to us monetary expansion does not lose its potency and reach a point where it fails to generate more GNP expansion.

The argument now being revived about the limits to expansive policy naturally thrived during the 1930's and it is worth recalling that episode and its sequel. There were, in fact, two different approaches to the problem then.

One was an attempt to explain why an increase in the stock of money would not produce an economic recovery. This was one of the central points of Keynesian economics of the late 1930's. Although the Administration has recently been declared on high authority to be Keynesian, this is not an aspect of the Keynesian doctrine that the Administration has accepted. Keynes invented for this purpose the notion of the liquidity trap, namely a situation in which interest rates had fallen so low, absolutely or relative to expected future interest rates, that increases in the money stock were simply absorbed into hoards without any effect on interest rates or on the real world. Keynes was somewhat ambiguous about whether this situation actually existed in the 1930's or was still to be encountered in the future. His disciples as usual were less cautious; they found the liquidity trap



right in front of them. Nevertheless, whatever may or may not have been true in the 1930's nobody has claimed to find the liquidity trap since the war ended and there is no evidence that it has appeared or reappeared today.

The second argument was an argument against the effectiveness of both fiscal and monetary policy for expansion. Unlike the Keynesian argument this was essentially a conservative or businessman's argument and it hinged on confidence. The economy was said to be depressed because business lacked confidence. Expansive policies would do no good but would actually make the situation worse because they would weaken confidence. During the first two terms of F. D. Roosevelt the list of things that caused lack of confidence was lengthened to include the Wagner Act, the SEC, Social Security, the TVA, the undistributed profits tax and many similar items. Surely there was plenty of reason for lack of confidence during the Depression. But still, when vigorously expansive measures were taken all the signs of confidence reappeared, and the New Deal policies that had been destroying confidence permanently lost their sting.

Lack of confidence has now come back to the center of the stage as an explanation of the claimed limit on the ability of monetary policy to generate the target GNP. If lack of confidence simply means that



households and businesses are spending less relative to their incomes and money holdings than they might this is certainly true. However, the evidence that they are spending less than "normal" is not unequivocal and would depend on some speculative calculations of what is normal. Moreover, the use of the word confidence does little if anything to explain this phenomenon or suggest a solution.

However, the main question is not whether lack of confidence is an element in our present situation but whether it is the only element, so that other measures cannot offset it or correct it. Specifically, have we reached such a state of confidence that increases in the money stock do not cause the purchase of other assets, including stocks and bonds, increasing the value of wealth owned by households, reducing the costs of borrowing, stimulating expenditures for housing and State and local facilities, and in turn and in time also stimulating expenditures for consumers' durable goods and business investment? There is no evidence that we are in such a condition and much evidence to the contrary.

It is not belittling the importance of confidence to say that other forces, including monetary policy, also have an effect on the economy and can affect and change confidence. The Administration believes



that confidence in the American economy is justified. It intends to act in a way that will demonstrate the justification of confidence, and most of all by promoting an orderly, vigorous expansion. We believe that the current state of confidence strengthens rather than weakens the force of expansive fiscal and monetary actions, because those actions will yield a favorable effect on confidence.

Will we do it?

We believe that \$1065 billion GNP in 1971 is a desirable path for the economy, we take it as the Administration's target and we believe it to be feasible. Even if we are correct in these beliefs, the question whether the \$1065 billion figure is probable remains. The question would boil down to this: Out of the division of labor among the Administration, the Federal Reserve and the Congress can a policy be fashioned that will add up to the result the Administration has described as desirable?

Of course, no one can offer guarantees about this. Still our confidence that the \$1065 billion will be attained depends on the answer being affirmative. All of the parties share the same general objectives, they face the same facts, they are in communication with each other and they are reasonable people. We expect them to reach their common objectives.



It is not in the nature of the Federal Reserve to specify its targets publicly far in advance, either for the gross national product or for the monetary variable. Certainly it is not my role to predict their policy. Yet certain very recent evidence may be cited.

Speaking last Friday before the Joint Economic Committee, the Chairman of the Federal Reserve said that the System "will not stand idly by and let the American economy stagnate for want of money and credit" and "will not become the architects of a new wave of inflation." These objectives, of course, the Administration shares. Moreover, Chairman Burns said that the \$1065 billion GNP figure for 1971 was admirable as a target.

More specifically, the Chairman said that "while a high rate of growth of the narrowly defined money supply may well be appropriate for brief periods, rates of increase above the 5 to 6% range -- if continued for a long period of time -- have typically intensified inflationary pressures." He also pointed out that in the first year of periods of recovery the income velocity of money has risen in the past by amounts ranging from 5-1/2% to nearly 7%, and that if velocity did not rise in 1971 in line with past cyclical patterns, then relatively larger supplies of money and credit may be needed. If we put together



the increase in the money supply and the increase in velocity implied by these statements, there is room for at least as rapid an increase in the GNP as the Administration has contemplated.

I do not cite these statements to deduce from them anything more than they plainly say. But I do want to suggest that the reporting of all such matters in the press tends to give the picture of an intractable disagreement that does not really exist.

The problem with the Congress is different, not so much because there is more disagreement, although that may be true, as because Congress is not organized to make any unified decisions about policy from the standpoint of the national economy. There is danger that in the pushing and pulling over particular expenditure programs we may come out with a total that is far away, in either direction, from our economic requirements. This would now seem to be a danger more for 1972 than for 1971, because the open questions mainly relate to next year. The problem is going to require constant attention but is probably not going to be decisive in its short-run effect.

I want to close by reemphasizing that we do not regard the goal -- summarized by the \$1065 billion figure -- as being assured simply because we have declared it to be our goal. We read the papers, do the arithmetic and think we know how hard it will be to achieve. But we think it is important to achieve, feasible, and probable with determination.



UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

FOOD SAFETY

Talk by Virgil O. Wodicka, Ph.D.

Bureau of Foods, Food and Drug Administration
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The word safety, like other abstractions, is a semantic trap. If we are to achieve meaningful communication on the subject, it is necessary to define more specifically what we are talking about. I propose to discuss today six specific hazards associated with foods in what I consider to be their order of decreasing importance.

I would place first on the list the microbiological hazard. I think that beyond question there are more people affected every year in this country by microbiological contamination of food than there are by any other impairment of food safety. Most widely known of these situations is conventional food poisoning such as that caused by Salmonella, Staphylococcus, and Shigella. Less widely known, because serious attention has been paid to it only during the last generation, is poisoning caused by Clostridium perfringens. We are finding, however, that this is one of the most common types. Widely known and dreaded, of course, is poisoning caused by Clostridium botulinum. This, fortunately, is not a common occurrence but is frequently fatal when it occurs. The fatality rate on the others is low, even though the incidence rate is not. Also, there is seldom permanent damage.

There are several factors associated with food poisoning of the types indicated that make it a vexing problem. One of these is the sharply increased and increasing use of convenience foods. I would include in this the growing practice of eating out or of eating at home foods that have been prepared at a delicatessen or drive-in.

The problem with the convenience foods is not usually present up to the point of preparation and packaging. Even if there is a low level of contamination with food poisoning organisms, this will not usually constitute a problem. If the product is to be distributed and held frozen or refrigerated, however, any breach of good handling practice invites trouble. Whether contamination is present from the factory or picked up from the environment, holding at high temperatures permits growth of the organisms to dangerous numbers. These bacterial numbers persist even if the product is again chilled or frozen. In this event, the customer has no way of knowing that the hazard is present.

With the widespread distribution of frozen and refrigerated foods, there are many opportunities for problems to arise at any point in the supply chain. Even here, however, the problem is not at its worst. Products of this type are quite commonly made in large establishments which have trained food technologists on the staff and use good equipment and practices. The problem is more serious in the smaller establishment with local distribution, where no one in the operation really understands the hazards or how to avoid them. This is also the problem with the drive-in or carry-out establishment where coating, sauces, etc. can disguise bad handling practices.

The small local operation is a problem in another respect. The large enterprise is subject to regulation and inspection by trained state or federal personnel. This can at least prevent habitual bad practice. The small local establishment is under local control, which is less apt to offer personnel with adequate training and backup facilities and which is even more likely to be overloaded than the state or federal establishments.

Another form of microbiological hazard that has come to attention in the last generation is the family of mycotoxins, most particularly aflatoxin. This is a family of toxins produced by various molds which invade food materials such as cereal grains and oil seeds. These toxins are fatal to test animals in relatively high doses and in lower doses produce liver cancer. In various primitive parts of the world there is strong suggestive evidence that widespread liver cancer is caused in man in this way. Long-standing prejudices against moldy food in this country have kept this from being a major problem, but the Food and Drug Administration has found it advisable to institute a control program on imported Brazil nuts and the USDA has done a very large and creditable job in establishing and operating controls over contamination levels in peanuts. The Food and Drug Administration has also acted against cottonseed meal and copra meal destined for animal feeds because it has been demonstrated that the mold-produced toxins are found in meat animals consuming contaminated feed, and that rats can get liver cancer from the milk of cows fed contaminated peanut meal.

I would put in second place among food hazards that of malnutrition. There are some who will think this is out of place in a discussion of food safety but it is unquestionably associated with food consumption and it is unquestionably prevalent. The national nutritional surveys have shown millions of our citizens to be affected by malnutrition in one form or another, and these effects are often permanent. In terms of both rate of incidence, therefore, and severity I would justify second place for this problem.

There are three fairly obvious causes for malnutrition. These are poverty, ignorance, and indifference. They are also obviously not independent of each other. There is even the phenomenon of the vicious circle. Regardless of the cause, malnutrition can lead to impaired intelligence, and this in turn to ignorance, probable indifference, and even fairly likely poverty.

The evidence available suggests, however, that the association among these causes is not complete. Although malnutrition is more common among the poor, it is not by any means confined to them, nor are all the poor malnourished. In any event, to the extent that poverty is a major factor, the obvious answer is money or its equivalent. The provision of money is now under debate in the Congress

and the equivalent has been provided by the Department of Agriculture in the form of food stamps. There is hardly much point in my discussing this further.

The Food and Drug Administration is taking two steps to cope with ignorance and indifference. In the first place, recognizing that ignorance is quite understandable in the instance of convenience foods that are a result of complex formulation unknown to the consumer, we have started to formulate, with the advice of the Food and Nutrition Board of the National Research Council, a series of nutritional guidelines to cover selected classes of foods. The first class will be a dual one of complete dinners and of formulated main dishes. Each of these subclasses will have a nutritional guideline specifying what nutrients the consumer should be able to expect in foods of these classes, and maximum values which should not be exceeded. Purchasers of these convenience foods, therefore, would be assured of sound nutrition in them, in spite of ignorance, or indifference, or both.

We would supplement the guideline program, however, with a labeling program, declaring the content of some of the major nutrients in various foods. We are now doing consumer research to try to establish the most effective way of communicating this information. We would expect that the guideline foods would bear our nutritional labels, but nutritional labeling would not be confined to those foods for which there are guidelines. We are counting on both of these programs to be followed voluntarily by food processors, and our discussions to date have been most encouraging in causing us to expect this to happen.

Although the Food and Drug Administration has taken leadership on these projects, success in them will require cooperation from the U.S. Department of Agriculture because many of the foods covered by these programs are under the regulatory jurisdiction of Agriculture rather than HEW. To date our discussions with your colleagues have been very encouraging in causing us to believe there will be a coordinated approach to these problems.

The Department of Agriculture, in turn, had pinpointed a number of specific populations where malnutrition is a special problem, and has designed special foods for use in these segments of the population. Here it has been our turn in Food and Drug to cooperate with the Department of Agriculture, because this has required modification of existing standards of identity to permit special formulations with the desired nutritional properties.

One area in which good nutrition and good nutritional habits are particularly effective is in the school lunch program. This is important because it is so large and widespread, and because the children are in an age when good nutrition is particularly important to influence their future health and when they are susceptible to the formation of proper eating habits. In this area, as in the specialized population segments, leadership has been taken by the Department of Agriculture, with support by the Food and Drug Administration.

In terms of incidence and severity, it is a long drop to the next hazard in rank order and it is correspondingly difficult to make a choice. I shall choose environmental contaminants for a third place. I do this largely without



having any data base. We have some sort of estimate of frequency of food poisoning even though these estimates are little better than guesses. There is at least a reported incidence which can be inflated by some sort of factor based on observation. There is also some sort of estimate as to the prevalence of malnutrition in this country. We do not have an estimate worth mentioning of the incidence of toxicity from environmental contaminants. On the other hand we know that this is not a new problem. It has been seriously suggested that the widespread use of lead in cosmetics and wine by the ancient Romans led to a sufficient loss in fertility among the upper classes to be a major factor in the downfall of the Roman Empire. We are still chasing lead in pottery glazes which can lead to lead poisoning when acid foods are placed in the pottery.

We have known for a long time that heavy metals made fat-soluble by combination with organic radicals were much more toxic than the inorganic salts of those same metals. We did not make much use of this information until it was borne in on us forcibly that microorganisms in bodies of water could convert inorganic salts or even metallic mercury to methyl mercury, which then worked its way up the food chain into fish. Now we are living with a problem which, at least in scattered spots, is worldwide in that the fish in various bodies of water are sufficiently high in mercury to constitute a hazard. This is particularly true in fresh water bodies where there has been industrial pollution. Except in large fish, such as swordfish and the larger tuna, ocean fish have not been found to be a problem. Controls have now been established on the large fish to keep mercury in the food supply at a safe level.

Lead and mercury are cited as examples of inorganic elements which can constitute a hazard in the food supply without constant vigilance. They are contributed by the environment but not necessarily through man-made pollution. For instance, the selenium that can reach troublesome levels in certain areas of this country is contributed naturally by the soil. The present indication is that the mercury in the ocean has been there for a long time, and may not have been put there by man. There is even some suggestion, although at this point very faint, that it may be an essential mineral.

The mineral elements which may or may not be influenced by human intervention, do not sum up the environmental contribution, however. Since the industrial revolution, man has been making various organic chemicals either in much larger quantities than nature ever did, or that nature never got around to. In many instances, these materials, which have never before existed in the world, have therefore not induced the development of degradative systems to break them down to their building blocks. Accordingly, various synthetic organic chemicals developed for a variety of uses and produced in rather considerable tonnages over the last century, have been gradually accumulating in the environment, particularly as they have served their purpose and been discarded, and thereby assimilated into the general background. In one way or another, these are now finding their way into the food and water supplies and are increasingly being identified in the body. Whether or not they are harmful, nobody knows.

Unravelling some of these problems can be extremely complicated. For example, tests on the herbicide 2, 4, 5-T led to the finding of birth defects.

Further study identified these with a contaminant in the family of chlorodioxins. We now find that the chlorodioxins are toxic in unbelievably small quantities, whereas we are now not at all sure that 2, 4, 5-T itself is toxic under normal conditions of use.

The Food and Drug Administration, the Environmental Protection Agency, and other Government agencies are mounting increasing programs to study and evaluate the hazards arising from environmental contaminants that fall within their various jurisdictions. It will be a long time before we feel secure in our knowledge of the problem. In the meantime, we can take comfort in the fact that, so far, our efforts are of a preventive nature, and no serious problems with these materials have been identified in the form of actual poisonings. I except here incidents like the one in New Mexico where a family was afflicted by mercury poisoning after the illegal use of treated grain which was known to be poisonous.

Next in order, perhaps arbitrarily, I would put hazards from naturally occurring toxins. We are now down to a level of relative unimportance. Each year, however, there are scattered incidents of poisoning from various plants, from shellfish, or from other foods in which there has been neither chemical nor microbiological contamination but only consumption to excess or under the wrong conditions. A number of the common legumes, for instance, can be fatal if consumed raw. There is a rather extensive list of toxic effects of various foods, but there is no unifying thread to these phenomena, and the only defense against them is either knowledge of a specific kind or the rigid adherence to established food practices. There is no way to plan a regulatory program to manage this problem.

Next, I would rank pesticides. Although there was a fair number of deaths from pesticides within the past year, most of these were not a consequence of eating treated food. The deaths occurred from direct contact with the pesticide itself.

The use of pesticides is not a matter of just the last few years. Inorganic compounds, particularly of lead, copper, and arsenic have been used for a long time in controlling insects as well as plant disease. The introduction of chlorinated organics, starting with DDT around the time of World War II, was considered a great stride forward because these organics were less persistent than the inorganic compounds they replaced. They were also of a very low order of toxicity. As the years went by, however, the large quantities in which they were used caused them to accumulate in the environment, causing the same kind of unease that I mentioned earlier in connection with other industrial organic chemicals because we could not be sure that these accumulations were safe, and with a lack of such assurance, we could not view with equanimity the continued buildup. At the same time, the evidence suggesting damage to wild fowl was such as to cause a strong reaction against the use of these persistent agents of pesticides. There is still no demonstration of actual harm to the human race from the consumption of food with pesticide residues, but their very persistence coupled with the lack of assurance that no harm would result has caused their progressive abandonment. At least for the time being, there has been widespread substitution of less persistent organic pesticides, particularly the organo-

phosphorus compounds, which have an action like that of the nerve gases and are, therefore, much more hazardous to personnel working with them than the chlorinated organics they have replaced. These compounds are largely decomposed in further environmental exposure or in processing, however, and are therefore not much of a problem as food residues.

One of the reasons why I rank pesticides low in the list of hazards is that the fact that they do destroy life among the pests has made it obvious from the beginning that they are hazardous. Accordingly, they have been used all along under more or less close control. As public concern over their safety has mounted, the stringency of the controls has increased correspondingly. A new federal agency, the Environmental Protection Agency, has been added to the others concerned with the control of pesticides, and efforts at the state and local level have been considerably increased. Accordingly, between the strong public interest in this problem and the strong regulatory efforts, I cannot rate as very high the hazards that survive all this scrutiny.

Finally I would list conscious food additives. Here again we must look at social and economic trends.

The trend toward urban and more specifically suburban living and the increasing engagement of the housewife in paid employment outside the home have been facilitated by and have in turn fostered the development of convenience foods. As the load of food preparation has been taken on more and more by the food processor, the consumer tends to impose on the processor standards of uniformity of quality that she is less likely to impose on herself. Somehow we always expect more of others. Even in the household kitchen, however, the skilled cook does not follow recipes slavishly as they are stated in the cookbook but varies quantities and procedures based on the properties of the particular materials at hand rather than the typical materials on which the recipe was based. The food processor, in doing the same thing, has more latitude because he knows the chemical constituency of his materials and, therefore, knows which particular constituent to add to adjust the finished product to the assortment of properties he desires. There is no need to add potato flour or wheat flour, for instance, when all that he wants in either instance is the starch. There is no need to add lemon juice when all he really cares about is the citric acid.

The adjustment of food formulations by the addition of pure chemicals in order to achieve specific performance characteristics has caused the ingredient declarations of many foods to sound pretty formidable. This is because chemicals added in pure form need to be declared on the label by their chemical names whereas when they are natural constituents of the foods going into the recipe their identity is hidden under the name of the food. The increasing tendency of food labels to read like chemical supply catalogs has generated a considerable degree of both humor and indignation among the general public.

A second aspect of convenience foods that causes this trend to take place is the fact that the convenience food is commonly offered in frozen or even less perishable form. In these cases, the food is expected to hold its condition for

a considerable period of time between processing and consumption. Ordinary household recipes do not yield foods with these properties. If color, flavor, and texture are to be maintained, various additives are required to bar emulsion breakage, oxidation, and other deteriorative effects of storage.

The chemistry of many of these deteriorative reactions is known and chemical additives are available that will block the reactions. It is only these additives, therefore, that make the convenience foods possible. Many of the additives of this type, however, are not natural constituents of foods but are rather other chemicals very similar to natural constituents but altered in chemistry to improve their functional characteristics. Because these substances are not of natural origin, they are these days particularly suspect.

In spite of the fact that there is considerable public concern and suspicion of the minor constituents used in formulated foods, there is no credible evidence that the permitted ones are, in fact, harmful. This is one of the reasons why I put this class of hazards last on the priority list, and the other reason is that these materials have been under close regulation by either the Food and Drug Administration or the Department of Agriculture. At some point in time the regulatory agencies had to be convinced that the substance was harmless under the conditions of use or it would not be permitted in the food supply.

The faith in this process was deeply shaken, however, when the cyclamate compounds had to be banned under the Delaney Amendment. The fact that these compounds, which had been frequently studied and always considered safe under the conditions of use, were now legally unsafe and, therefore, banned from the food supply, cast its shadow over all the other substances used as functional additives.

The possibility of such an occurrence still exists, however, and will always exist. No matter how many safety tests are performed on any particular substance, there always exists the possibility that one more test will rule the material out, particularly under an arbitrary legal criterion. There is nothing that can be done to guard against this contingency.

On the other hand, it is quite true that many of the substances used in our food supply for decades or even centuries have not been very closely studied for hazard. Accordingly, it is appropriate that such a study be made.

The Food and Drug Administration is committed to a restudy of its entire list of substances generally recognized as safe, and it proposes to go on from there to a survey of all its regulated food additives.

In the list of substances generally recognized as safe, or GRAS list as it is called, we are starting by doing a complete survey of the published literature on each of these materials. We shall then know what formal studies have been made on their toxicity. We are also determining through a questionnaire their uses in foods, the levels at which they are used in foods, and the total quantities that are used. We are determining the specifications for purity, the methods of manufacture, and the best analytical methods for demonstrating their presence and level. Where the evidence in favor of safety appears to be inadequate, we shall cause the missing evidence to be developed, either by the

manufacturers of the substance or, where this cannot be done, by public bodies. We are targeting for the completion of our review for toxicity of all these GRAS substances by the end of this calendar year. That will not, of course, be the completion of all the necessary testing, because if any tests are found necessary, they are likely to run on for several years. In almost all instances, the short-term, acute type toxicity tests have been done on these substances, and any deficiencies would lie in the long-term, low-dose studies which will necessarily take a long time to complete.

Let me conclude by saying that we have recently been encouraged to hear that we shall probably be given the facilities at what has been the Pine Bluff Arsenal in Arkansas to create the National Center for Toxicological Research. The main emphasis of this facility will be in the strengthening of the science of toxicology, particularly in the area of chronic low-dose studies. We hope to arrive at firmer and more definitive criteria for safety, particularly for foods, but in view of the fact that the facility will be a national center, also for other environmental hazards. The Environmental Protection Agency is also being funded for work in this facility. No doubt other Government Departments will also have needs along these lines. As soon as these facilities can be converted and made available for this type of study, we shall be starting on the studies of food additives, on pesticides, and on other environmental chemicals that come to us by way of our food supply.



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Southern Corn Leaf Blight

Talk at the 1971 Outlook Conference, Washington, D. C. 9:55 a.m.
Wednesday, February 24, 1971

The blight epidemic of 1970 was due to a combination of several factors: (1) a new race of the fungus which was highly pathogenic on corns carrying the T sterile cytoplasm, (2) a large percentage of our corn acreage planted to T cytoplasm or blend hybrids, (3) weather factors generally favorable to the spread of the disease and (4) other factors which are not understood.

Under favorable moisture and temperatures the blight spreads rapidly. The fungus produces a pathotoxin which kills tissue adjacent to the lesion. If infection is heavy the plant may die very rapidly.

We now know that we have had the T race of the fungus for several years. We have also had a large acreage of T cytoplasm hybrids. Why then have we not had serious blight in previous years. This is a question for which we have no satisfactory answers.

The new race of the fungus, Race T, differs from the old race, Race O, in many ways. First it attacks leaves, stalks and ears whereas the old race attacked only the leaves. Second the new race can complete its infection cycle in 4-6 days; the old race requiring 6-8 days. This new race can also grow and be infective at lower temperatures.

Feeding trials with blighted plants have shown no adverse effects on either steers or heifers. Blight damaged grain, when fed to swine or chickens, has shown no harmful effects. Other tests using rats, mice or guinea pigs have also shown no toxic effects. The pathotoxin therefore is not injurious to animals although it can kill tissue on T cytoplasm plants very rapidly. The toxin has no similar effect on normal cytoplasm hybrids.

When plants and ears are infected with blight, germination of seed may be adversely affected. Some seed lots produced in 1969 and 1970 exhibited such low germination percentages as to be unsalable. The commonly used seed treatment, thiram and captan, are ineffective in controlling blight.

In some cases the fungus penetrates the seed. Such seed either do not germinate or give rise to abnormal or blight seedlings which die during

germination or in the seedling stage. Under favorable laboratory conditions such seedlings can produce viable spores. How important this may be under field conditions remains to be established.

The important question is: Will we have a recurrence of the blight epidemic in 1971? Unfortunately this cannot be predicted with any greater accuracy than one can predict the weather. We can however, consider some of the arguments for and against the recurrence of a serious blight epidemic in 1971.

Some of the factors that point to a possible recurrence of a serious blight epidemic in 1971 are as follows:

1. The blight is now widely distributed throughout the corn-growing areas in plant residue. The fungus within leaves, stalks or ears can withstand very low temperatures. Overwintering tests being conducted at many States indicate the fungus is still fully viable in debris on the soil surface.
2. Blight has been present on corn-growing in Florida throughout the winter. Spring planting has begun in Florida and viable wind-blown spores are now being collected.
3. Normal wind currents move up the Mississippi Valley from both the southeast and southwest providing a vehicle for the northward movement of spores.
4. The weather for 1970 was, in general, favorable for both the growth of corn and for blight infection. A normal year in 1971 would provide equally favorable conditions for blight.

Some of the arguments advanced for a reduced blight epidemic in 1971 would include:

1. There will be a higher percentage of N cytoplasm hybrids planted in the South this year. The T race of the blight is only mildly pathogenic on normal corn and therefore the spore supply may be drastically reduced.
2. Although infected plant debris occurs throughout the corn-growing area some argue this will not likely lead to local infections. In the recurring warm moist conditions preceding corn planting, the mycelium is stimulated to growth and spore production. Such

spores will be ineffective as there will be no plants to infect. Growth and spore production will stop under dry, cooler conditions. The mycelium cannot survive many successive periods of wetting and drying and may become ineffective before corn has emerged.

3. Debris from susceptible plants exhibits a reduced ability to overwinter and remain infective. Thus heavily blighted fields in 1970 may pose no more of an infective hazard than fields with only moderate or mild blight infection.
4. Even if some infection occurs from infected debris the fungus must go through 6 to 8 infection cycles before the number of spores are sufficient to cause an epidemic. This time interval is sufficient for the arrival of wind-blown spores from the South. Thus severe infection may not occur any earlier than in 1970.

Unfortunately both series of arguments involve a considerable degree of uncertainty and speculation. We shall have to wait for the final answer.

G. F. Sprague, Leader
Corn and Sorghum Investigations

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

TOWARD A NATIONAL HEALTH PROGRAM

Talk by Ruth L. Aikens

Associate Director of Health, National Urban League
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 9:30 A.M., Wednesday, February 24, 1971

Conservative, staid Fortune magazine, in January 1970, began the decade with a comprehensive statement concerning the state of this nation's health care system. In it, Fortune admitted that "American medicine, the pride of the nation for many years, stands now on the brink of chaos."^{1/} "To be sure," said Fortune, "our medical practitioners have their great moments of drama and triumph. But much of the U.S. medical care, particularly the everyday business of preventing and treating routine illnesses, is inferior in quality, wastefully dispensed, and inequitably financed. Medical manpower and facilities are so maldistributed that large segments of the population, especially the urban poor and those in rural areas, get virtually no care at all--even though their illnesses are most numerous and, in a medical sense, often easy to cure."

These sentiments have been echoed almost everywhere. Following in the footsteps of President Nixon, who has called attention to the "massive crisis"^{2/} in health care, the then Secretary of Health, Education and Welfare, Robert H. Finch, also agreed that "this nation is faced with a breakdown in the delivery of health care unless concerted action is taken."^{3/} Despite the rather clear statement of the problem from all sides, there is no national agreement, no national commitment, on what that "concerted action" should be. Bills and resolutions thus far introduced in the Senate and House of Representatives attempt to go in several directions at once. Sen. Walter F. Mondale of Minnesota proposed to the 90th Congress a 15 man temporary "National Commission on Health Science and Society" to study the situation and render a report. (Senate Resolution 145). Senator Jacob K. Javits proposed to that same session of Congress that a "Federal Council on Health" be established in the executive office of the President to conduct studies and set national health goals, (S. 1347). Senate Concurrent Resolution No. 69, introduced by Sen. Edward Kennedy of Massachusetts, would establish a 24 man congressional committee to review existing health legislation.

^{1/} Editorial, Fortune, 81:79, Jan., 1970.

^{2/} New York Times, July 11, 1969.

^{3/} "Report of the AMA Council on Medical Education," J.A.M.A. 210:1456, Nov. 24, 1969.

The 91st session of Congress came closer to dealing with the issue. Rep. Richard Fulton of Tennessee and Sen. Paul J. Fannin of Arizona introduced health insurance bills based on the "Medi-Credit" approach of the American Medical Association. Rep. Durward G. Hall of Missouri submitted a national health insurance plan that would replace Medicaid by voluntary health insurance covering 80% of health care costs and major illnesses when health care costs exceed a fixed percentage of the family's income. Rep. Martha Griffiths of Michigan introduced an AFL-CIO proposal that would replace Medicare and Medicaid with a program of comprehensive health benefits for all ages and income groups, financed by 3% employer, 1% employee Social Security tax and matching federal revenues. Sen. Abraham Ribicoff of Connecticut introduced a "Health Organization Act," (S. 2898) which would establish in the executive office of the President a council of health advisors to suggest policy and evaluate programs. Later, Senator Ribicoff called for an investigation of private health insurance plans.^{4/} Senator Javits also introduced a national health insurance bill (S. 3711).

Widely publicized is the program developed by the United Auto Worker's Committee of 100 under the leadership of the late Walter Reuther and introduced as legislation by Senators Kennedy and Yarborough. Under this plan, national health insurance costs, estimated at \$40 billion a year, would be financed by employer, employee, and government contributions and would provide comprehensive coverage. Yet nowhere in this legislation or in the myriad of bills, resolutions, or plans that have been advanced to date, is there any clear mandate to establish and implement with speed any coordinated national health system.

Medical care in the United States is a gigantic, expensive business dwarfed in cost only by the business of defense; (estimated expenditures for 1969: \$85.2 billion).^{5/} In 1969, medical care cost the people of this nation almost \$63 billion, roughly 7% of the gross national product and more than we spend either on social security or the education of our children.^{6/} Despite this huge investment, the United States ranks 17th among all nations in the life expectancy of women and 14th in the rate of infant mortality.^{7/} Life expectancy is lower and infant mortality is even higher among the black and the poor. Despite this huge investment, most of our nation's 313,000 active physicians work alone as private entrepreneurs, largely responsible only to themselves and constituting "an army of pushcart vendors in an age of supermarkets."^{6/} Clearly, our ailing medical care system--or non-system, to be more accurate--requires immediate and radical surgery. It is the purpose of this National Urban League position paper to explore closely the nature of the surgery necessary and to set forth principles and criteria against which specific proposals for the treatment of our medical care system can be evaluated.

^{4/} New York Times, June 1, 1970.

^{5/} New York Times Encyclopedic Almanac, 1970.

^{6/} Faltermeyer, E. K., "Better Care at Less Cost Without Miracles," Fortune 81:80, Jan. 1970.

^{7/} Medical Tribune, May 4, 1970.



NEEDED: A NATIONAL HEALTH SYSTEM

- . National Financing Cannot Be Divorced from National Health Care.

To establish a nationwide health financing program without concurrently providing for the delivery of comprehensive health services under that program would be to perpetuate the existing system with all of its glaring deficiencies.

- . Accordingly, To Be Considered Favorably, Any Proposals, Plans or Suggestions Must Make Specific Provision for Both To Be Coordinated into A National Health System.
- . The National Health System Must Be Available To and Function Effectively for All Regardless of Age, Race, Sex, Location, Citizenship Status, or Income.

This is a vital requirement, particularly in view of the fact that some 24 million Americans under 65 now have no health insurance. Even those enrolled in insurance plans have significant gaps in their coverage and therefore cannot make extensive, prolonged use of the health care services currently available.^{4/} The present uneven and discriminatory pattern of health insurance coverage is illustrated by the following statistics: 85% of the people under 65 have some hospitalization insurance and about 78% are covered to some extent for surgeon's fees, only 51% have coverage for x-rays and lab tests outside the hospital, and only 40% for visits to the physicians office. From the differentials evident in this example between the percentage of persons covered by insurance for physicians and hospitalization, it may be easily inferred that the 3 major components of comprehensive health care services, prevention, early diagnosis, and treatment, are less likely to be available and utilized by those disadvantaged persons who need them most.

NEEDED: MORE HEALTH PROFESSIONALS

- . A National Health System Must Provide A Tax Supported Public Health Professional Education and Training Program Which Is Free to Any Applicant able to Utilize the Training and Education Necessary to Fulfill a Wide Range of Health Professional Roles. The Recipient of Public Health Professional Education and Training Would Be Required to Fulfill a Five Year Service Commitment. Such an Educational System Must Be Non-Discriminatory and Genuinely Open to All.

The federal government is already in the business of educating physicians, social workers, and nurses. Most professional schools are highly subsidized by federal funding through research grants and a variety of matching grants. A public system would allow a more effective and nondiscriminatory utilization of the tax dollar. Through the Physician Augmentation Program, administered by the Department of Health, Education and Welfare and funded under the Special Project Grant section of the Health Manpower Act of 1968 (P.L. 90-490), schools are expected to increase their first year enrollments by 1,000 students per year, beginning in the fall of 1970.^{3/} In 1969, the American Medical Association

and the American Association of Medical Colleges (AAMC), in a joint statement on federal support of medical education, called upon the Nixon administration and the Congress to provide \$117 million under the Health Manpower Act for support of operating costs of medical schools, \$170 million for construction and renovation of health education facilities, and another \$20 million for construction of health research facilities.^{9/} It is interesting to note that this joint statement reversed previous A.M.A. policy by calling for increased federal funding of loans to medical students for tuition and other expenses. Before, the A.M.A. had said that private loans were sufficient to meet the need. Comparable programs are available for nurses and social workers, but generally lacking for other health professionals.

Such efforts are at best feeble and inadequate to meet the needs. Seven states: Alaska, Delaware, Idaho, Maine, Montana, Nevada, and Wyoming, have no medical schools.^{10/} Of these, only Nevada has any expectation of starting a school as soon as the fall of 1971 and even then it is only expected to open with 64 first year students.^{3/}

The number of MD's graduated each year did not exceed 8,000 until 1969. With the advent of the 1968-1969 academic year, the number of first year students in all medical schools totaled 9,863. The A.M.A. sees these figures as evidence that "the 'tooling up' process in American medical education is beginning to show results in terms of more medical students and more graduates." Even the A.M.A. has had to admit that "the response of the system is painfully slow when considered in relation to the public demand for more physicians to provide more medical care."^{3/}

As of the 1968-1969 academic year, there were 35,809 students enrolled in 98 U.S. medical schools. Of these, only 858 or 2.39% were black.^{11/} This is a slight improvement over the 1967-1968 figures of 2.28%.^{12/} Since the black population of the United States approximates between 11 and 12% of the total, the total admission of black students to medical school reflects the widespread denial of equal opportunity. Although there has been some progress in black student recruitment in the past few years, stimulated in part by the Macy Conference held in June, 1967,^{12/} the progress has been painfully slow. This is particularly true in view of the fact that two predominantly black schools--Howard and Meharry--enrolled 61.77% of all the future black physicians and 13 of the other 96 schools have no black students at all. It is revealing that 11 of the 13 schools with no black enrollment are supported by state tax revenues.^{11/}

^{9/} "Joint AMA-AAMC Statement on Federal Support of Medical Education," July, 1969.

^{10/} Medical Economics, Dec. 22, 1969.

^{11/} Crowley, A.F., and Nicholson, E.C., "The Education of Negroes for Medicine," J. of the National Medical Assn., 61

^{12/} Cogan, L., Negroes for Medicine, the Johns Hopkins Press, Baltimore, 1968.



NATIONAL MEDICAL ASSOCIATION MEMBERSHIP BY SPECIALTY
AND SPECIALTY BOARD CERTIFICATION — 1967

	Total NMA Members (100%)	Board Certified	% Board Certified	Not Board Certified
Total Physicians	4805	1074	22.4	3731
Allergy	4	0	0.0	4
Anesthesiology	79	27	34.2	52
Aerospace (Aviation) Medicine	9	0	0.0	9
Cardiovascular Diseases	14	3	21.4	11
Child Psychiatry	25	8	32.0	17
Colon and Rectal Surgery	1	1	100.0	0
Diagnostic Roentgenology	1	1	100.0	0
Dermatology	49	22	44.9	27
Gastroenterology	8	2	25.0	6
General Practice	1867	16	0.9	1851
General Preventive Medicine	10	6	60.0	4
General Surgery	479	206	43.0	273
Internal Medicine	540	110	20.4	430
Neurological Surgery	15	3	20.0	12
Neurology	22	5	22.7	17
Obstetrics and Gynecology	425	152	35.8	273
Occupational Medicine	10	3	30.0	7
Ophthalmology	78	38	48.7	40
Orthopedic Surgery	65	16	24.6	49
Otolaryngology	33	10	30.3	23
Pathology	56	31	55.4	25
Pediatrics	280	143	51.1	137
Pediatric Allergy	1	0	0.0	1
Pediatric Cardiology	2	2	100.0	0
Physician Medicine & Rehabilitation	22	7	31.8	15
Plastic Surgery	6	3	50.0	3
Psychiatry	275	81	29.5	194
Public Health	19	7	36.8	12
Pulmonary Disease	8	0	0.0	8
Radiology	109	74	67.9	35
Thoracic Surgery	14	12	85.7	2
Urology	78	40	51.3	38
Not Recognized (1)	65	34	52.3	31
Unspecified	136	11	8.1	125

(1) includes 55 Administrative Medicine

PREDOMINATELY WHITE MEDICAL SCHOOLS RESPONSIBLE FOR
TRAINING MORE THAN 20 BLACK GRADUATES

University of Illinois College of Medicine	57
University of Michigan Medical School	48
Wayne State University School of Medicine	38
Indiana University School of Medicine	35
Ohio State University School of Medicine	30
New York University School of Medicine	27
Harvard Medical School	23
Northwestern University School of Medicine	22
Loma Linda University School of Medicine	22
Chicago Medical School	21

A task force of the AAMC recently recommended that minority group students in medical degree programs be increased to 12% of the total enrollment by 1975-1976.^{13/} The task force suggested that increases in the number of places available in medical schools, more student loans and special counseling would make the goals possible. Nevertheless, based on projections of the current rate of the current rate of growth by the Public Health Service, there will be 13,000 first year medical students in 1975-1976.^{10/} If the goal of the AAMC task force is attained, this would mean that only 1,560 of those students entering medical school in 1975 would be black. And this would still not begin to meet the needs of the black community. If successful the AAMC Task Force efforts will not materially change the 1967 fact that among white American citizens, one in 560 becomes a doctor, whereas among black citizens the ratio is 1 in 3,800.^{12/}

The thrust of this discussion has been on physicians only because the shortage of doctors is most dramatically acute. Further, the medical profession has the longest and most complex professional training period. There could be, however, a comparable discussion relative to each of the health professions.

ENROLLMENT AND GRADUATES OF U.S. MEDICAL SCHOOLS 1968-69

Enrollment 1968-1969	98 Schools	96 Schools*
Total	35,809	35,236
Black	858	328
% Black	2.39	.93
Class of 1968		
Total	7,930	7,778
Black	155	47
% Black	1.95	.60
Class of 1969		
Total	8,168	8,037
Black	167	60
% Black	2.04	.75
Class of 1970		
Total	8,596	8,450
Black	196	34
% Black	2.28	.40
Class of 1971		
Total	9,403	9,212
Black	217	70
% Black	2.31	.76
Class of 1972		
Total	9,717	9,545
Black	278	130
% Black	2.87	1.37
% Change	.92	.77

* excluding the two predominately black schools, Howard University and Meharry Medical College.

- Any Law Establishing a National Health System Must Clearly and Unequivocally Commit This Nation to the Principles of Non-Discrimination and to the Training of Sufficient Numbers of Health Professionals--including Doctors, Dentists, Pharmacists, Occupational Therapists, Administrators, and Others--to Meet the Increasing Needs of an Expanding Population and Economy.
- A National Health System Must Also Provide for and Encourage the Continuing Formal Education of Physicians, Nurses, Administrators, Technicians, and Other Personnel without Loss of Income.

This should be considered an integral part of the system's thrust for greater efficiency, productivity, and higher quality care. The health professional needs both the encouragement and the opportunity to attend post-graduate courses, seminars, and professional meetings without financial loss. In 1968-1969, 71 medical schools reported 127,377 registrations in regular continuing education courses.^{3/} Since physicians who do enroll in post-graduate courses tend to enroll in more than one, the probability is that no more than 63,688 or only 20% of the nation's active doctors actually participate in medical school programs. While radio and television courses attract another 24,658 registrants, this experience cannot compare with the participation with peers in an intellectually stimulating, productive, and more conducive learning environment. Health professionals would participate in continuing education if courses were readily available, if they were assured of being able to participate without financial loss and if there is provision for adequate care of their patients during periods of absence. Further, participation in post-graduate courses could be encouraged by special income incentives for salaried health professionals or income tax incentives for the self-employed.

- A National Health System, As Part of Its Thrust to Improve the Quality of Medical Care, Should also Encourage Physicians to Seek Certification by the Specialty Board in the Field in Which They Are Working.

As of 1967, only 38% of all physicians in internal medicine were board certified, only 36% in psychiatry, 46% in obstetrics, and 68% in radiology.^{14/}

PERCENTAGE OF BLACK SPECIALISTS WHO ARE BOARD CERTIFIED

1967

	% Board Certified (Black)	% Board Certified (U. S.)
Internal Medicine	20	38
Psychiatry	30	36
Obstetrics & Gynecology	36	46
General Surgery	43	48
Pediatrics	51	57
Radiology	68	68

^{14/} Haynes, M. A., "The Distribution of Black Physicians in the United States: 1967," J. of the National Medical Assn. 61:470, Nov. 1969.

Board certification is no guarantee of quality care, but it is the only objective measure beyond mere licensure that the consumer has for determining clinical competence. Since, with the exception of those in radiology, black physicians have not been granted sufficient opportunities for advanced study leading to board certification, a non-discriminatory national health system could eliminate this problem.

NEEDED: BETTER DISTRIBUTION

- A National Health System Must Assure That Comprehensive and Specialized Health Care Services Are Distributed Evenly Throughout the Nation by Area and in Accordance with the Needs of the Populace.

With proper planning, health professionals may be encouraged to serve in the rural and poverty areas of the nation where the need is most apparent. This could be accomplished by requiring, in return for government financed training, a minimum five year period of service, or other incentives in assigned areas. Precedents for this approach may be cited from the experiences such as Puerto Rico, Mexico, and some European countries.

Contrary to widespread belief, the second major barrier to health care in the United States, after its high cost, is not physical distance from hospitals. Hospital facilities of 25 beds or more are now within 25 miles of all but 2% of the population, and within 10 miles of any urban area.^{15/} Rather than in distance, the problem lies in fear, distrust, denial of treatment, or the inaccessibility of care to the poor, the black and the isolated.

While more is involved in the supply of medical services than the number of physicians available, their number is crucial. When the National Advisory Commission of Health Manpower issued its report in 1967, the Commission cited three problems patients characteristically face: difficulty of reaching a physician at nights or on weekends, except through emergency rooms of local hospitals; long delays in obtaining appointments for routine care; hurried and impersonal attention even after long hours wasted in waiting rooms.^{15/} These indicators pointing to the kind of service the nation receives is tied to the critical shortage of treating physicians since the physician is an integral part of the health team and usually is its leader.

Since 1950, the number of physicians has grown some 25% faster than the general population. By 1967, there were 277,729 active physicians--doctors of medicine or osteopathy--outside of the federal services, roughly 135 per 100,000 population. (The Department of Health, Education, and Welfare estimates that at present rates of growth, there will be 361,500 active physicians in 1975, a ratio of 160 per 100,000 population.) It must be noted, however, that such overall statistics tend to obscure the actual situation. About a third of all

^{15/} Report of the National Commission on Health Manpower, Vol. I, U.S. Government Printing Office, Washington, D.C.

active physicians are in research, public health, hospital administration, industry, or teaching. The actual doctor-patient ratio including specialists is closer to 92 per 100,000.^{17/} If just those physicians providing day-to-day family care are considered--the general practitioners, internists and pediatricians--then the ratio is down to 50 per 100,000.^{17/} This is the heart of the problem. It is through just these practitioners that the first treatment of illness is sought.

In addition to the physician shortage in general, the supply of those available is extremely uneven geographically. The District of Columbia leads the nation with 318 non-federal physicians providing patient care per 100,000. New York State is second with 199 per 100,000. Colorado ranks third (168/100,000); Connecticut, fourth (164/100,000); and California, fifth (161/100,000). At the bottom of the scale, Mississippi and Alaska have but 69, and Puerto Rico only 68. Even in states in favorable positions, distortions in distribution are common. Private physicians tend to settle in prosperous, predominantly white, middle class urban neighborhoods or suburban areas.^{17/} Ohio, for example, had in 1967, 129 non-federal physicians providing care per 100,000 population. But a

DISTRIBUTION OF NMA PHYSICIANS BY REGION AND STATE 1967

Division State	Total NMA Members	Division State	Total NMA Members
New England	93	Virginia	138
Connecticut	41	West Virginia	12
Maine	3	East South Central	275
Massachusetts	43	Alabama	61
New Hampshire	0	Kentucky	37
Rhode Island	6	Mississippi	44
Vermont	0	Tennessee	133
Middle Atlantic	976	West South Central	244
New Jersey	178	Arkansas	17
New York	562	Louisiana	62
Pennsylvania	236	Oklahoma	30
East North Central	921	Texas	135
Illinois	265	Mountain	29
Indiana	99	Arizona	12
Michigan	270	Colorado	8
Ohio	256	Idaho	0
Wisconsin	31	Montana	0
West North Central	197	Nevada	3
Iowa	12	New Mexico	5
Kansas	23	Utah	0
Minnesota	19	Wyoming	1
Missouri	135	Pacific	598
Nebraska	7	Alaska	0
North Dakota	1	California	574
South Dakota	0	Hawaii	4
South Atlantic	1084	Oregon	6
Delaware	11	Washington	14
D. of Columbia	417	Possessions	22
Florida	82	Puerto Rican	11
Georgia	86	Virgin Islands	11
Maryland	163	Address Unknown	84
North Carolina	130	Overseas	262
South Carolina	45	Foreign Countries	20

Total Physicians: 4,805

^{17/} Cordtz, D.D., "Change Begins in the Doctor's Office," Fortune, 81:84, Jan. 1970.

survey in Cleveland found only .45 physicians per 1,000 in poverty neighborhoods, but more than double that frequency in non-poverty areas (1.13 per 1,000).^{18/}

Like their white counterparts, black physicians tend to gravitate towards the better neighborhoods in New York, California, and the District of Columbia. A 1967 study by the National Medical Association, a predominantly black professional organization, found that of its 4,805 members, 574 were in California, 562 in New York, and 417 in Washington, D.C.^{14/}

If the distribution of physicians is considered by medical specialty, the situation appears particularly uneven. Recent attempts to attract more students to general practice or family medicine have not been notably successful. As of the 1968-69 academic year, only 20 programs in these fields have been established, only 713 interns, residents, or fellows were on duty in these programs and 43% of the internships and residencies offered went vacant.^{3/} Such efforts will not materially alter the fact that only 22% of all physicians^{3/} and 38% of black physicians are in general or family practice, the point of contact through which most patients enter medical care.

At present the most attractive specialties among all physicians are, in rank order, internal medicine (14%), surgery (10%), and psychiatry, obstetrics-gynecology and pediatrics (6%). Preferences among black physicians follow a similar pattern.

However, the gravity of the specialty problem shows up most clearly on close examination of the distribution of any one specialty group. For example, even in favored New York, there are only 25 psychiatrists per 100,000 population. Rural states suffer even greater lack of psychiatric treatment: Maine, Kentucky, Indiana, North Dakota, New Mexico have only 4 psychiatrists per 100,000. Poorer states such as Alabama and Mississippi have only 3 per 100,000.

NUMBER AND PERCENTAGE OF BLACK SPECIALISTS OF CERTAIN CATEGORIES

	U.S. Physicians 1967	Black Physicians 1967	Per Cent
Internal Medicine	42,325	540	1
General Surgery	29,687	479	2
Psychiatry	19,749	275	1
Obstetrics and Gynecology	17,964	425	1
Pediatrics	17,614	280	2
Radiology	10,877	109	1

A National Health System Could Alleviate the Shortages of Particular Specialties by Making Residencies in This Field Particularly Attractive Financially or Through the Use of Other Incentives.

^{18/} Report of the National Advisory Commission on Civil Disorders, U.S. Govt. Printing Office, Washington, D. C. 1968.

NEEDED: NEW WAYS TO SERVE

Clearly, health manpower in all categories is and will remain in critically short supply unless creative solutions are conceived. In view of the increased demand for improved and more readily accessible services, the problem will never be solved merely by recruiting more people into traditional training programs, however expanded and attractive such programs become. Rather, the key to the improvement of medical care lies in a bold re-ordering of priorities, careful re-definition of previous roles and realistic evaluation of the amount of formal education necessary to carry out new responsibilities successfully and efficiently.

In many areas of medical care, innovative approaches have already begun to point the way. Faced with impossible shortages of care-giving personnel, institutions all over the nation are finding new avenues of more effective service in the "paraprofessional," the warm, empathetic person who not only relates more easily and more personally to the patient in distress but who also carries a significant and substantial part of the work load previously reserved for professionals with lengthy and expensive training. In less than a week, for example, hospitals in New York have trained aides, most of whom are black and not formally educated beyond ninth grade, to take and record temperatures and blood pressures, routines that at one time were thought to require a full nursing education. In North Philadelphia ghetto as well as rural Iowa, psychiatrists have discovered that local housewives and others without high school diplomas can, after only a brief period of "on the job" training, serve effectively in helping most families and individuals in emotional crises.

In many instances, programs that began strictly as manpower production schemes have found that by tapping new human resources, the quality of care is improving substantially. In what started out as merely an attempt to assist its over-burdened professional psychiatric staff, not long ago the U.S. Army began to produce "social work/psychology specialists" in a ten-week training program. Needless to say, the enlisted men often find these "specialists" easier to talk and confide in than the Army psychiatrists who are all of officer rank. Similar situations prevail in civilian life, especially in rural or disadvantaged urban communities where differences in status or race tend to act as barriers to communication between the highly trained, middle class professional and the patient in need of his services. In such instances, the use of the paraprofessional aides may be essential to the delivery and maintenance of high quality, dignified and comprehensive care.

- A National Health System Must Be Committed to the Flexibility Necessary to Discover and Implement New Ways to Raise Standards of Care Through the Recruitment and Training of Paraprofessional Personnel and to the Establishment of "Career Ladders" Which Enable Advancement to Higher Levels of Service.

NEEDED: PUBLIC EDUCATION

- A National Health Care System Must Emphasize Case-Finding and Public Education as Part of Its Preventive and Treatment Efforts.

It is not enough for a concerned health system to sit back and wait for patients to present themselves. Experience has shown that many patients will neglect themselves out of ignorance or fear or mistrust. To be effective, the national health service must reach out beyond institutional doors. One imaginative approach is the project undertaken at Hunters Point ghetto of San Francisco. "The program is unique in that it doesn't include the usual charity clinic concept and no stigma is attached to the recipients," Edwin T. Johnson, M.D., reported in the Journal of the National Medical Association.^{19/} "Backed by government financing and sponsored by a local medical society, a program has begun in which teams of social workers, nurses, and health aides go into neighborhoods, often knocking on doors and surveying the health needs of the community block by block. These teams assist people to the proper entrance into the medical field. They instruct the community about their health needs; they inform them of proper facilities available; they return patients to their own physicians or clinics and inform them of indigenous private physicians if they have no doctor." A similar effort by the University of Rochester Department of Preventive Medicine and Community Health uncovered 10,000 residents 65 or over in need of some specific treatment other than for senility. Of the 10,000, only 41% were receiving the care they needed.^{19/}

Community surveys have long been part of the routine among workers in public health. Many hospitals, community health centers and medical school Departments of Community Medicine have reached out into the community in similar ways, thereby making themselves better known and more acceptable in the communities involved. By utilizing indigenous professional and paraprofessional personnel, such pilot programs have to a great extent begun to overcome the resistance and distrust in disadvantaged areas. Successful programs can serve as models for national health system procedures.

Similarly, the model of the National Institute of Mental Health in its use of television, radio, and other mass media for public education purposes, can be utilized to promote health education programs on a nation-wide basis.

NEEDED: A SINGLE HEALTH AGENCY

- To Be Effective, A National Health System Must Be Administered by A Single Agency under Community Influence and Control and Have a Secretary of Health at Its Head.

It should be organized in such a way as to take under its wing all civilian health, mental health, and environmental activities now conducted by a variety of separate federal, state, and local government agencies. The organization of this agency must provide for influential consumer participation at all levels of its functioning and assure community control of those facilities and programs which provide direct services.

^{19/} Johnson, E.T., "The Delivery of Health Care in the Ghetto," J. of the National Medical Assn. 61:263, May, 1969.

Some indication of the extent of the fragmentation and duplication of health matters in government is shown in the recent experience of the Joint Commission on the Mental Health of Children. Dr. Reginald Lourie, the Commission's President, has stated that his staff found more than 70 separate, distinct, and uncoordinated federal programs directly related to childhood mental health and these programs were spread over more than 40 different government agencies and bureaus. Another example is the Environmental Science Services Administration which is now in the Commerce Department while other environmental matters are covered by the Public Health Service. Still another example is the problem of air pollution which is now a responsibility of the Public Health Service, while water pollution is in the hands of the Department of the Interior.^{20/}

A well-coordinated single agency could bring together and thereby maximize the effectiveness of similar efforts. In 1969, while the Department of Health, Education, and Welfare was spending \$122 million for the construction of private hospitals and another \$74 million on health research and education, the Veteran's Administration was spending \$1,582 million on its own hospitals and medical care.^{21/} All such facilities could be merged into the national health system, thereby making them available to all instead of to selected segments of the population. Veterans could still be entitled to special benefits, but their treatment would often be more convenient in hospitals or other facilities closer to their homes and an emphasis on outpatient care would discourage dependency and chronicity.

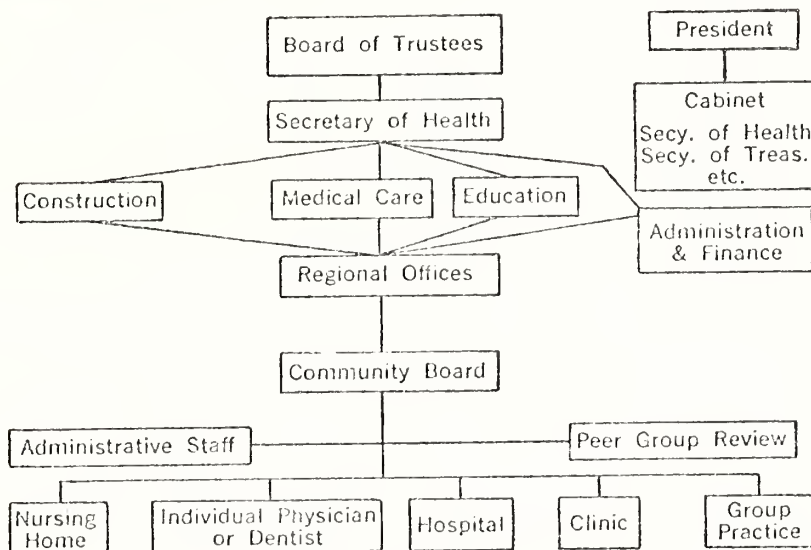
The nucleus of an agency capable of operating a national health system already exists in the U.S. Public Health Service and its supporting structures, the Consumer Protection and Environmental Health Service, the Health Services and Mental Health Administration, and the National Institutes of Health.^{20/} Reorganization to provide consumer participation in policy making and planning at all levels from national office to local neighborhood would be necessary.

Starting at the top, a broadly representative (including consumer and community representation), Council of Health Advisors should help set national standards for health care and environmental protection, provide for national licensing of health workers in all categories, determine other specific policies and guide the implementation of these policies. Long range planning on a national scale should be the responsibility of a central office in Washington with divisions headed and manned by career civil servants rather than political appointees. Funds should be allocated to representative regional boards for regional planning, establishment of regional medical centers for specialized care, and for distribution to community boards concerned mainly with providing and elevating the quality of care in their own localities. Community boards finding themselves with similar problems and needs could associate themselves on an area basis. Essential to effective operation and elevation of standards of care would be review panels to check on the quality of care being rendered and to act on consumer complaints.

^{20/} U.S. Government Manual, General Services Administration, U.S. Gov't. Printing Office, Washington, D.C., 1969.

^{21/} Statistical Abstract of the United States, Bureau of the Census, U.S. Gov't. Printing Office, Washington, D.C., 1968.

ORGANIZATION OF A NATIONAL HEALTH SERVICE



THE COMMUNITY
(Approximately 25,000 families)

To provide and extend the facilities of the existing federal hospitals system, regional and community boards could enter into contractual agreements with county, state, or municipal hospital systems, private hospitals and clinics, individual physicians or physicians in group practice.

FINANCING THE NATIONAL HEALTH SYSTEM

- To Avoid the Pitfalls of Dependence on Annual Appropriations, Funds for the National Health System Must Be Considered As "Trust Funds" in Much the Same Way that the Social Security Revenues Are Considered Now.

The general revenue should be the major source. It is feasible for adequate resources for the education of physicians and other health workers, for public education, for administration, for the construction of treatment, training, and research facilities and other phases of the system could come from the general federal tax revenues, employer-employee contributory taxes, or a surtax on income marked for this purpose. Such revenues could be reviewed and revised by Congress every five years, and supplemented if necessary on an annual basis.

The experience under provisions of the Medicaid law as compared to Medicare, suggests that the national health system should operate without financial participation or "Matching grants" from the states. To date, because of the optional nature of Medicaid, the people of Alabama, Alaska, Arizona, Arkansas, Florida, Indiana, Mississippi, New Jersey, North Carolina, and Tennessee are without Medicaid coverage, although these states are known to have sizable "medically indigent" populations.^{22/} Further, after it had been in existence

^{22/} Medical Tribune, July 14, 1969.

for only about a year, the New York State Legislature, frightened by the \$461 million Medicaid was costing, raised the standard for participation, thereby reducing the number of people who could be served.^{23/} A similar attempt, which would have cut "Medi-Cal" expenditures by some 25% was blocked by the California Supreme Court.^{24/}

KEEPING COSTS DOWN

- A National Health Financing System Must Also Operate to Control, Rather than Inflate the Cost of Medical Care.

One important factor in the rising health costs of the recent past is the growing use of increasingly expensive hospitalization.^{6/} The effective use of preventive medicine, early diagnosis and increased emphasis on the treatment of disease on an outpatient basis and in its initial rather than acute phases, would reduce the need for hospitalization. Further, the present "piece work" or fee for service method of billing for medical care--separate for lab tests, x-rays, hospital room and board, visits to the doctor, surgery, anesthesia, etc.--has in the past few years made the costs of medical care soar above those of other costs of living. In addition, by insuring hospitalization and not health, existing private insurance plans as well as Medicare and Medicaid have encouraged unnecessary hospitalization. By using a cost-plus formula of reimbursing hospitals after fees are incurred, these programs have further served to inflate the nation's health bill. Medicare and Medicaid provisions for the payment of "usual and customary" fees have encouraged physicians to raise the level of fees for all.

- A National Health Financing System Must Be on a Pre-Paid Rather Than "Reimbursement" Basis. It must Encourage Preventive and Outpatient Care Where Possible and Promote Efficiency and Effectiveness in Hospital Management. This Places the Emphasis of a National Financing System on the Maintenance of Health Rather than on Care of Disease.

SUMMARY

To be effective, a national health program must be sufficiently comprehensive to make specific provision for the delivery of health services, financing, education, and training. It must:

be administered by a single agency under community influence and control;

have a Secretary of Health at its head and be manned primarily by career civil servants;

encompass all civilian health, mental health, and environmental activities now covered by a variety of separate agencies; and

^{23/} Medical Tribune, Dec. 19, 1967.

^{24/} Medical Tribune, Dec. 28, 1967.



hold and control its own funds in trust for those it serves.

The primary goal of a national health system is to provide high quality, comprehensive, dignified medical, dental, and mental health care and environmental protection for all people in the United States regardless of race, sex, location, citizenship status or income. To attain this goal, the national health system must:

take responsibility for the accessibility and even distribution of quality comprehensive health services and appropriate health professionals to meet the needs of the nation as a whole and poverty and rural areas in particular;

devise a system of public tax-supported education and training for health professionals with a required service commitment; such a system would be void of all forms of discrimination;

provide for and encourage the continuing formal education of all health professional personnel without loss of salary; to encourage physicians to seek specialty board certifications; practitioners of specialties must be encouraged to achieve appropriate certification and accreditation;

emphasize and promote research, case-finding, and public education in health; and

provide for national certification or licensure of health workers in all categories.

Through regional and community boards, the national health service may contract with existing private or public facilities, individuals or groups to provide needed services. However, to control the cost of care, such contracts shall require payment on a per capita or other basis, taking into consideration area needs, and shall not provide for payment on a reimbursement or "fee for service" basis. Further, such contracts shall in all cases provide for local review of the quality of service rendered.

Funds to support the national health system may be drawn from many sources. The most promising approach would be the utilization of the general tax revenues, but other methods such as contributory taxes from employers and employees or a surtax on income earmarked for this purpose may be alternatives. In any event, health systems funds should be organized in a trust fund plan to assure program stability.

The nucleus of an agency capable of operating a national health system already exists in the U.S. Public Health Service and its supporting structures: the Consumer Protection and Environmental Health Service; the Health Services and Mental Health Administration; and the National Institutes of Health.

The United States is the only so-called "developed" nation in the world that does not now have a national health system. As a people we are pledged not only to provide for the common defense but also to promote the general welfare. In the past, as demonstrated by Social Security and Medicare, our nation has responded to a nationwide problem on a nationwide, federal basis. The time has come to do the same with medical care. The World Health Organization defines health as a state of complete physical, mental, and social well-being--not merely the absence of infirmity or disease. American can do no less.



UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR WHEAT

Talk by William R. Askew
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 1:15 P.M., Wednesday, February 24, 1971

The total supply of wheat in 1970/71 is only fractionally smaller than the 2,282 million bushels of a year earlier. The 1970 crop was down about 80 million bushels from 1969 while the July 1, 1970 carry-over was up about 65 million.

The 1970 crop was harvested from 44.3 million acres, down 3.3 million from 1969 and one of the smallest in the last 50 years. Yield per acre was a record high 31.1 bushels exceeding the previous record of 30.7 bushels in 1969. The small acreage in 1970 reflected the 45.5 million acre national wheat allotment, and a voluntary acreage diversion program that took 3.6 million acres out of production.

Disappearance of wheat totaled 846 million bushels during the first half of the 1970/71 marketing year. Exports at 376 million bushels were sharply above those of July-December 1969. Food and seed use were little changed. There was little change in the quantity used for feed. This item totaled 157 million bushels virtually the same as in July-December 1969. National average grain price relationships pointed to prospects for increased use of wheat for feed. But, in the major wheat areas the principal feed grain was not competitive with wheat.

Stocks of wheat in all positions on January 1, 1971 totaled 1,417 million bushels, off sharply from those of a year earlier. Privately held ("free") stocks on January 1 totaled 657 million bushels, about the same as a year earlier. Reseal stocks accounted for 338 million bushels of the total, down somewhat from those of January 1, 1970. But the reseal loan is not being extended for many crops. Thus, about 220 million bushels of the wheat in reseal on January 1, 1971 is not eligible for extended reseal.

Unless there is a sharp increase in exports, disappearance of wheat during January-June 1971 is likely to be about the same as in July-December 1970. But, even with this leveling in usage, total disappearance in January-June 1971 is expected to be greater than the 649 million bushels in the same period in 1970.

Exports during January-June may equal the level of July-December 1970 (376 million bushels) in working towards a marketing year total of 725 to 750 million bushels. At approximately 350 to 375 million bushels they would be somewhat larger than the exports of January-June 1970. Commercial exports were especially heavy during the first 6 months of 1970/71; food aid exports were rather low. While commercial exports will continue heavy during the remainder of this year, food aid shipments may pick up from that of the first half. But for all of 1970/71 food aid exports are not likely to be much different from those of 1969/70.

Even though the monthly farm price has declined from the \$1.45 per bushel in November, it is still likely to remain above year-earlier levels the rest of the 1970/71 marketing year. Price strength will be derived from the low level of January 1 "free" stock relative to anticipated requirements during January-June.

Total disappearance during January-June 1970 was almost identical to January 1 "free" stocks. Use totaled 649 million bushels; stocks were 659 million. The monthly farm price averaged several cents over the loan until June when it slipped to \$1.23 per bushel. Loan repayments were large enough to create a "free" carryover of 152 million bushels last summer.

During January-June 1971 the level of prices relative to the loan will be strongly affected by farmers decisions on resale wheat loans that are not being extended past this season. While farmers have faced this decision at times in the past it has not involved the quantities of wheat now under consideration. Some of the resale wheat has incurred large interest charges and likely will be delivered to CCC.

Despite an anticipated high level of feed grain prices relative to wheat prices during January-June 1971, wheat feeding is expected to expand only slightly from the 52 million bushels for this period a year ago. The tight "free" supply, and the resulting strength in wheat prices, could be the major factor keeping wheat out of feed markets in substantial quantities. For the entire 1970/71 marketing year wheat feeding may total about 235 million bushels, 10% above last year.

Total disappearance of about 1,570 million bushels, appears likely. Thus, the June 30, 1971 carryover may be sharply below the 885 million bushels of last June. At around 700 million bushels it would be the smallest since 1968 and the first decline since 1966/67. The decline would also be the sharpest reduction in carryover since 1963/64.

Exports of hard red wheats and white wheat rose sharply during July-December 1970 compared with the same period of 1969. Soft red and durum exports during the first half of 1970/71 were virtually the same as a year earlier.

For the entire 1970/71 marketing year, soft red exports are likely to be slightly below last year's 28 million bushels. Hard red spring exports as well as those of hard winter may exceed last year's respective totals of 91 million bushels and 33 $\frac{1}{4}$ million. Spring wheat exports of around 100 million bushels appear likely while exports of hard winter could total upwards of 100 million bushels above 1969/70. Exports of durum may equal or exceed the 1969/70 total of 34 million bushels while white wheat exports may be off slightly from the 119 million last year.

Wheat prices have been above year-earlier levels in every region this season. Price strength has been particularly evidenced in the soft wheat areas. However, in the soft red wheat areas, corn prices continue to equal or exceed wheat prices. In the Pacific Northwest, barley is well below wheat in price. In all regions, prices have tended to level off or decline slightly following the sharp increases of last fall.

The January seeding intentions report indicated that spring wheat acreage may total 13 million acres, up nearly 2 million from last year. However, it is questionable that wheat producers were fully aware of the new program when they completed this intentions report since the program was announced in December and the intentions survey was made as of January 1. Thus, spring wheat acreage could expand further. The usual March intentions report will still be released in that month. Winter wheat seedings were down slightly from a year earlier. Many winter wheat producers were uncertain about the status of the legislation applicable to the 1971 crop and likely planted on the basis of legislation in effect at planting time. They seeded 1% less acreage than for the 1970 crop. Seedings of winter wheat for harvest in 1971 totaled only 38.1 million acres, the least since the 1957 crop. The percentage to be harvested for grain was placed at 85.9% compared with 87.1% for 1970.

Yield per seeded acre is estimated at 27.3 bushels, 1.8 bushels below the 1970 record, but still the second largest. Based on December 1 conditions, the prospective winter wheat crop was placed at 1,040 million bushels. At this level it would be 7% less than the 1970 crop and the smallest since 1965.

World wheat trade in 1970/71 may be second only to the 2.3 billion bushels of 1965/66. In that year, food aid shipments to India and Pakistan were far higher than they will be in 1970/71. Then the Soviet Union alone imported over 300 million bushels of wheat; this year it will probably take less than 50 million.

For the first time in recent history, grain supply and import requirements are now quite close together both for wheat and feed grains. This has obscured some traditionally sharp distinctions in trade, utilization, and price levels among the grains. Behind this year's market and price situation is an unusually coincidence of major developments that have either reduced supply or increased import demand. The overall impact on international supply and demand is an expansion in world wheat and coarse grain trade.

Domestic supplies of grain last year in Europe, including stocks carried from previous years, were the lowest since 1966--about 8 to 9 million tons below a year ago. Although Western Europe had a record corn crop, it was nowhere near enough to offset drops in output of other grains, mostly due to low yields.

Import requirements for grains by East European countries have increased. Reduced crops of all grains last season could result in wheat imports 2 million to 3 million tons above 1969/70. These countries normally import a large portion of their needs from the USSR, but purchases already completed by mid-season indicate that a portion of this year's increased needs will also be met by the United States and other Western sources.

Also of major impact on trader's buying plans has been the occurrence of corn leaf blight in the United States. This alone reduced by perhaps 10 million to 15 million tons the available total grain supply from which either U.S. or overseas users can draw. The disease's impact in 1970 leaves a degree of uncertainty about a possible recurrence in 1971.

Excluding trade among member countries of the European Community, which alone amounts to 2.5 million to 3 million tons, total world wheat import requirements this year are currently estimated at 55 million to 56 million metric tons. This represents an increase of 10% over last year, but is still below the 1965/66 record of 61.4 million tons, and is about the same as the two other previous high years of 1963/64 and 1966/67.

Western Europe will account for roughly 2 million tons of the projected increase of non-EC-grown wheat. Eastern Europe--mainly Yugoslavia and Romania--may account for another 2 million. Most notable among the smaller import changes, which account for the remaining trade increase of 1 million to 2 million tons, are increased purchases by Turkey and Japan.

Shipments by other wheat exporting countries will benefit from an estimated decline of 3 to 4 million tons in wheat exports by the European Community to third countries. EC export volume in 1969/70 reached a record level of over 7 million tons, approximately 12% of world wheat trade. Based on preliminary crop and marketing indications, net exports by the USSR probably will increase. Last year Soviet Union net exports totaled almost 5 million tons. Other small exporting countries, such as Spain, are also expected to show a total decline of about 500,000 tons in wheat shipments. Shipments by Argentina will be unusually low for the second consecutive year because of reduced domestic crops.

With smaller supplies and lower export shipments anticipated among these other countries, it is likely that the size of the combined overseas outlet for wheat from Canada, Australia, and the United States this year will probably be 11 million tons larger than during 1969/70. Approximately half of this expected increase will be from greater import needs and about half from reduced competition by other export sources.

How this increased market will be divided between these three countries will depend on their respective competitive positions in various markets. Although acting to reduce production this past year, all entered the current season with large stocks from previous crops.

World wheat production in 1970 is estimated at 285 million metric tons (10,500 million bushels), 1% below the 1969 crop on the basis of information currently available. The current crop is 4% above the 1964-68 average. World wheat area was down 5% for the year.

Canada produced 9.0 million tons of wheat in 1970, 52% below the previous year, as area was cut in half under Canada's Lower Inventory For Tomorrow Program. The United States had a 37.5 million-ton harvest, 6% below 1969, while area declined 7%. Yield was at a record level, up 1%. The South American wheat crop is placed at 7.8 million tons, 23% below the previous year. The Argentine harvest of 4.2 million tons was the lowest since 1960, as area was sharply reduced by early-season drought. Brazil's crop is estimated at a record 1.5 million tons, up 31% on increased area.

The West European outturn totaled 43.5 million tons, down 4%. The Economic Community harvested 29.4 million tons, 7% below 1969. The French and West German crops were off 11 and 6%, respectively. Spanish production declined 14%, while that of the United Kingdom was higher by 26%. The East European harvest was down 10%, at 22.9 million tons, with major declines in Hungary, Romania, and Yugoslavia. The USSR wheat crop is estimated at roughly 80 million tons, the second of record to the 85 million tons in 1966.

African wheat production was up 11% at 7.2 million tons. The Moroccan crop advanced 27% higher for the principal gain. The Asian wheat crop totaled 68.1 million tons, 3% above 1969. The principal gains were in Mainland China, India, and Pakistan. Australia produced 8.4 million tons of wheat, 22% below a year earlier, as areas were sharply reduced under a restrictive delivery quota system.

The following basic provisions are included in the 1971 Wheat Program:

1. The national wheat allotment is changed to a domestic allotment totaling 19.7 million acres. This is the acreage that, on the basis of the estimated national yield, will produce enough wheat for domestic food use. Wheat certificates will be issued to participating farmers in an amount equivalent to estimated domestic food use. In determining the domestic allotment, domestic food use may not be less than 535 million bushels. This is equivalent to 43% of the total acreage allotment for the 1970 crop.
2. The domestic allotment is used to determine the acreage to be set aside on each farm and the total of domestic marketing certificates a producer may receive under the wheat program. The domestic allotment does not limit the wheat acreage that may be planted.
3. A producer may qualify for program benefits by setting aside the acreage specified for his farm and maintaining his conserving base. He can then produce any crop that he chooses on the remaining acres except those governed by quotas--peanuts, rice, tobacco, extra-long staple cotton, and sugar when proportionate shares are in effect.
4. The maximum set-aside requirement under the 1971 wheat program will be an acreage between 60 and 75%, but not to exceed 75% of the domestic allotment. The final percentage will be determined and announced prior to signup.
5. Additional diversion of acreage for payment will not be made available in 1971.

6. Producers are no longer required to plant wheat in order to qualify for program benefits. However, those who fail to plant at least 90% of their domestic allotment or an authorized substitute may have their 1972 allotments reduced as much as 20%. If no wheat is planted for 3 consecutive years, the entire allotment can be lost.
7. The face value of domestic certificates will be set at the difference between 100% of parity and the national average market price received by farmers during the first 5 months of the marketing year (beginning on July 1, 1971). In the past the value of the certificates has been the difference between 100% parity and the national average loan rate.
8. Preliminary payments to farmers will be made as soon as practicable after July 1, 1971. These will be equal to 75% of the estimate of the total payments to be made. The balance of the payment, if any, will be made after December 1. If the estimated preliminary payment is found to be too high, no refund by producers will be required.
9. Payments are limited to a maximum of \$55,000 per person. The limitation applies to direct payments only, of which marketing certificates payments constitute the bulk. The limitation does not apply to loans or CCC purchases.
10. The loan level will be \$1.25 per bushel, national average. It was set, as in the past, at a level deemed appropriate considering the world market price of wheat, feed value of wheat in relation to other feed grains, and the price support level for feed grains.
11. The new program includes no excess wheat provision which required producers to store their grain if they overproduce. However, excess wheat stored under prior programs may be released to the extent production in any year is less than 3 times the domestic allotment times the farm yields.

Table 1.--Wheat: Supply, distribution and prices,
average 1964-68 and annual 1967-1970

Item	Year beginning July				
	Average 1964-68	1967	1968	1969 1/	1970 projected
----- Million bushels -----					
<u>Supply</u>					
Beginning carryover	643.6	425.0	539.4	818.6	885
Production	1,401.9	1,522.4	1,576.2	1,460.2	1,378
Imports 2/	1.2	.9	1.1	3.2	1
Total supply	2,046.7	1,948.3	2,116.7	2,282.0	2,264
<u>Domestic disappearance</u>					
Food 3/	513.1	519.2	519.7	520.2	525
Seed	67.8	71.5	61.3	55.4	60
Industry	.1	.1	.1	.5	---
Feed (residual) 4/	110.2	57.0	172.8	215.1	235
On farms where grown	(42.7)	(42.9)	(60.8)	(63.7)	---
Total	691.2	647.8	753.9	791.2	820
<u>Available for Export and Carryover</u>	1,355.5	1,300.5	1,362.8	1,490.8	1,444
<u>Exports 2/</u>	728.4	761.1	544.2	606.1	725-750
Total disappearance	1,419.6	1,408.9	1,298.1	1,397.3	1,545-1,570
<u>Ending carryover</u>	627.1	539.4	818.6	884.7	694-719
Privately owned--"Free"	(194.5)	(216.2)	(202.9)	(152.2)	
----- Dollars per bushel -----					
<u>Price Support</u>					
National average loan rate	1.26	1.25	1.25	1.25	1.25
Average certificate payment	.50	.48	.55	.65	.75
<u>Season Average Price Received</u>					
By non-participants	1.39	1.39	1.24	1.24	1.36
By program participants	1.89	1.87	1.79	1.89	2.11

1/ Preliminary.

2/ Imports and exports are of wheat, including flour and other products in terms of wheat.

3/ Used for food in the United States and U.S. territories, and by the military both at home and abroad.

4/ Assumed to roughly approximate total amount used for feed, including amount used in mixed and processed feed.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

SEASONAL VARIATIONS IN U.S. DIETS

Talk by Arletta M. Beloian
Consumer and Food Economics Research Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 1:45 P.M., Wednesday, February 24, 1971

Over the years the Department of Agriculture has conducted surveys to assess the nutritive value of diets and to determine the kinds, quantities, and money value of food used by households. Usually the surveys have been conducted in the spring. The 1965-66 survey program was expanded to include separate surveys for the summer, fall, and winter quarters to determine what variations in consumption and diets occurred from season to season. Separate samples of households were interviewed in each of the four seasons.^{1/} Since there were some differences in the size of households from season to season, the descriptive data in this paper are based on per person averages. This procedure permits examination of the seasonal data on a comparable basis and helps clarify seasonal patterns.

Households in the nationwide survey were classified by region, urbanization, and income. This paper focuses on season to season differences among regions and urbanizations. Differences among these categories of households will be described in terms of seasonal changes in dietary adequacy, shortages of key nutrients and their food sources, and variations in per person consumption rates for selected food groups. Seasonal variations in diets of low-income households--that is, those with incomes under \$3,000 for the preceding year--will be contrasted with the general patterns. Also, we will consider briefly the seasonal variations in value of food at home and distribution of the food dollar among food groups.

The National Research Council's 1963 Recommended Dietary Allowances (RDA's) were used to evaluate the household diets. The average daily nutritive content of each household's food consumed in a week was compared with the total of the recommended allowances for individuals based on their age and sex. In rating diets of households, an adjustment was made for food eaten away from home by comparing the nutritive value of food at home with the proportion of the recommended allowance for household members represented by their meals at home.

^{1/} Reports on Food Consumption of Households, Year 1965-66 and Seasons, are in preparation. HFCS Report 12 contains data for the United States, Report 13 for the Northeast, Report 14 for the North Central, Report 15 for the South, and Report 16 for the West.

Let us start by identifying the seasonality in the adequacy of diets in the United States.

Seasonality in Dietary Adequacy

In the spring of 1965 about half of the United States household diets met the Recommended Dietary Allowances for all nutrients studied. We call these "good diets." The proportion of good diets varied little from season to season in the April 1965-March 1966 period (fig. 1). However, some seasonal variation was evident in the incidence of "poor diets"--those diets falling short of two-thirds of the RDA's for one or more nutrients. For the spring, 21 percent of the diets in the United States rated as "poor" compared with 18 percent in each of the other three seasons.

The U.S. seasonal pattern of a higher proportion of poor diets in the spring than in the other seasons was found also in the Northeast, North Central, and South. In the West, the only marked seasonal variation was a substantially smaller proportion of poor diets in the fall (table 1).

In each of the several urbanization categories, we found relatively more poor diets in the spring than in the other seasons, just as in the United States and regional totals. The proportion of poor diets during the spring among urban households was somewhat lower than among rural nonfarm and farm households. Compared with the other urbanizations, notably fewer farm diets were rated poor in the summer, 13 percent compared with 18 percent in the urban and rural non-farm categories.

The all-U.S. pattern of relatively more poor diets in the spring than in other seasons was found also among low-income households; 36 percent of the low-income diets were rated poor compared with 21 percent for all income groups.

Nutrients Critical for Dietary Quality

When diets were rated poor in quality in the United States, it was most frequently because they failed to provide two-thirds of the allowances recommended for ascorbic acid, vitamin A, and calcium. Although these nutrients were a problem in every season, diets short by one-third or more of the recommended amounts for ascorbic acid and vitamin A value occurred more often in the spring; calcium shortages were more frequent in the summer. Examination of the incidence of these nutrient shortages during the spring revealed that the North Central and South had a higher proportion of diets below two-thirds of RDA for ascorbic acid than the other regions and that the South had relatively more diets low in vitamin A. Calcium shortages occurred more often in the summer in the Northeast, North Central, and South, whereas in the West calcium was more of a problem in the spring (table 2).

Iron was not a problem in the household diets when these were evaluated by the 1963 RDA's. However, there is a strong possibility that if the larger

amounts recommended for most age and sex groups in the 1968 allowances had been used as standards, iron would be short of the allowance in a larger proportion of diets.

When sample households are sorted by urbanization, more diets were below two-thirds of allowances for ascorbic acid and vitamin A in the spring than in other seasons in each urbanization. Relatively more rural than urban diets had problems with ascorbic acid and vitamin A in the spring. In contrast, urban diets were more often below two-thirds of calcium allowances in the summer. The proportion of rural nonfarm diets with calcium shortages in the summer fell between those for rural farm and urban diets.

In brief, it appears that the all-U.S. problem with vitamin A in the spring was heavily influenced by the proportions of the diets of rural nonfarm and farm households which were short one-third of the recommended amounts or more for this nutrient. Ascorbic acid was a problem in the spring for many households in all three urbanizations. For the urban diets ascorbic acid was less of a problem during the rest of the year, but notable proportions of the rural diets fell below two-thirds of the RDA again in the fall and winter. Among low-income households, the same nutrients presented problems, and the proportions falling below two-thirds of the RDA's were almost double those for the total U.S. sample.

Seasonality in Food Sources of Problem Nutrients

To understand the origins of these dietary problems, we examine next the seasonality in the food groups that are their primary sources. The food grouping used for this discussion is that most relevant to dietary analysis and matches survey reports 6 through 10.

Food Sources of Ascorbic Acid

Nearly 90 percent of the ascorbic acid in U.S. diets was supplied by vegetables and fruits, in almost equal shares, for the year 1965-66. Fruits supplied more of the ascorbic acid in the winter and spring, while vegetables supplied more in the summer and fall (table 3). The winter peak for fruit was predominantly associated with the availability of citrus. The summer peak in tomato consumption brought the vegetable contribution of ascorbic acid to its high for the year. In the fall quarter of the year, dark green and deep yellow vegetables made their greatest contribution.

During the year as a whole and in the spring quarter, diets in the Northeast, North Central, and West derived more of their ascorbic acid from fruits, whereas the South had more supplied by vegetables. Each region followed the United States seasonal pattern of relatively larger shares contributed to total ascorbic acid supplies by fruit in the winter and spring. Vegetables provided a larger share of ascorbic acid in summer and fall in each region, as in the United States as a whole. The high summer contribution of vegetables to ascorbic acid in the South is particularly notable.

In the urban and rural nonfarm categories the average amount of ascorbic acid supplied by fruit was lower in summer and fall than in winter and spring. Farm supplies from fruit averaged lower in the fall than the other three quarters. Fruit was substantially less important as a source of ascorbic acid among farm households in every season than in urban households. The percentage contributions by vegetables were higher in the summer and fall than in the other two quarters for all three urbanizations.

Food Sources of Vitamin A

Vegetables contributed more vitamin A value than any other food group in each of the four seasons, but the share of the United States average supply varied from 38 percent in summer to 48 percent in fall (table 4). The relative contribution of fruits swung more widely, from 5 percent in the fall and winter to 16 percent in summer. Therefore, the larger supplies of vitamin A value from fruits in the summer quarter offset the low in vegetable contribution, but no other food source countered the relatively low seasonal supply (in I.U.) from vegetables in the spring months. Thus, the low vegetable consumption rate in spring was the major factor in the vitamin A problem of that period.

The South showed the most season to season variation in vitamin A supplied by vegetables, with the peak contribution in the fall considerably larger than that in the other regions. In all four regions, supplies of this nutrient from fruit were highest in the summer.

Among the three urbanization categories, the seasonal swing in vitamin A value contribution from vegetables consumed by farm households was much greater than in urban or rural nonfarm households. The key element was of course the seasonal availability of home-produced supplies. The seasonal variation in the contribution of fruits to vitamin A was also somewhat greater among farm than urban households.

Food Sources of Calcium

The third nutrient most often short in the household diets was calcium. Part of the seasonal variation in the adequacy of diets with respect to calcium arose from the slightly higher household requirements in summer months when school children ate more of their meals at home.

The average daily supply of calcium per person for all U.S. households varied only 4 percent from the summer low to the winter high. Consumption of fresh fluid, canned, and dried milk contributed about 10 percent more calcium per person in the winter than in summer (table 5). The relative contributions of other dairy products and of enriched and whole-grain cereal products varied little from season to season.

Seasonal variations in calcium supplied by milk were wider in the Northeast than in the other regions. The contribution of the enriched and whole-grain cereal products to the South's calcium supply varied little among the



four seasons, but it is notable that households in the South obtained almost twice as much calcium from the enriched grain group than in the other three regions. This results in large part from much greater use of self-rising flour and cornmeal in that area than elsewhere.

The calcium contributions of milk products and the enriched and whole-grain cereal group varied seasonally in about the same way and to the same minor degree for the three urbanization categories.

Seasonality in Food Consumption Averages

Consider next the season to season differences in consumption rates for foods categorized in marketing terms. This is the grouping used in survey reports 1 through 5 and in the forthcoming seasonal reports 12 through 16.

Fresh Vegetables and Fruits

For the country as a whole, consumption of fresh vegetables and fruits per person exhibited more seasonal variation than other food groups. Summer consumption of fresh produce was considerably higher than in any other season, as expected. During their peak production season, fresh vegetables were consumed at a rate almost 50 percent greater than the annual average. Fruit use averaged almost 33 percent greater (table 6).

Among the regions, summer rates for fresh vegetables were about half again as large as the annual for the Northeast, North Central, and South (fig. 2). Fresh vegetables varied much less in the West from season to season. The major element in the summer highs was greater consumption of tomatoes. Fall rates for dark green and deep yellow vegetables were above the annual average except in the North Central Region.

Farm households varied their fresh vegetable consumption substantially more than either rural nonfarm or urban households. High consumption in the summer reflected heavy use of home-produced supplies. The relatively high proportion of farm households among low-income households in the country contributed to the greater seasonal variability in the use of fresh vegetables, especially tomatoes, by the low-income group than that exhibited by all U.S. households. Low-income households consumed substantially more dark green and deep yellow vegetables per person in a week in the fall than in the year as a whole. This seasonal variation was greater than among all-U.S. households. It reflects the seasonal changes in consumption by substantial numbers of southern farm households who were categorized as low income.

Fresh fruit consumption was higher in the summer than in any other period. Consumption of fresh fruits per person in the several regions during the summer quarter ranged from about 20 to 50 percent above the annual averages for each region. Although overall consumption of fresh fruits increased during the summer, citrus consumption in that period

averaged only about half of the annual rate. However, citrus consumption in the winter substantially exceeded its annual average in all regions.

Season to season variations in consumption of fresh fruits were found in all three urbanizations. Farm use by season varied much more than urban because of the greater variability in use of deciduous fruits. Urban households used more citrus per person in every season than rural households. Seasonal variation in fresh fruit use was substantially greater among low-income households than the all-U.S. average.

Processed Vegetables and Fruits

Consumption of processed vegetables and fruits showed notable seasonal variation in the United States and regions with the summer averages consistently lower than those in the other seasons (fig. 3). This occurred at a time when consumption rates for fresh vegetables and fruits were highest seasonally and the quantity consumed per person was about six times greater than canned and frozen combined (on an as-purchased basis). Therefore, the substantial increase for fresh vegetables and fruits appears to have more than offset the decrease in processed items. The summer shift to fresh produce from processed by farm households was notably greater than among the urban or rural nonfarm groups.

Commercially canned vegetables and fruits were used more in the winter in all regions. Southern households used less per person of the canned form in every season than those in the other regions. In each season, farm households used less commercially canned vegetables and fruits than other urbanizations. Low-income households consumed canned forms of fruits and vegetables at a slightly lower rate than the average for all incomes, but their season to season changes were similar.

Milk and Milk Products

Although season to season variation in per person consumption of dairy products (except butter) was slight, dairy products are considered here because of their impact on the diet and because some variations did occur in the use of fluid milk and ice cream. The all-U.S. consumption averages for fluid milk in fresh and processed forms were lower in the summer and higher in the fall and winter. The quantity of ice cream used varied more from season to season than milk or cheese. The summer rate for ice cream was 18 percent higher than the annual average and that for winter was 13 percent lower.

All four regions followed the United States pattern of lower consumption of fluid milk per person in the summer and higher in the fall and winter. The consumption rate in the Northeast for fluid milk, however, varied more from season to season than the other three regions. The South had the lowest rates per person in all four seasons.

Families in the South and North Central consumed more ice cream in the summer than the annual rate and had more season to season variation than the Northeast and West.

Urban, rural nonfarm, and farm households exhibited only slight variation from season to season in milk consumption per person. Ice cream consumption had more season to season variation than milk in each urbanization category. In the summer the urban and farm rates averaged about 18 percent more than the annual average. The rural nonfarm average was 11 percent above that for the year.

Low-income households varied their fluid milk use somewhat more on a per person basis than did households with higher incomes, with the greatest difference occurring in the winter quarter.

Meats

Although the all-U.S. household average for the consumption of meat showed some seasonal variation, the extent of variation was not notable. Households with incomes under \$3,000 varied their meat use with season more than all households in the United States. Their beef consumption was 30 percent higher in the fall than in the summer. Consumption of cured pork per person in the low-income group was about 40 percent higher at the spring peak compared with the fall low. Disappearance data on per capita consumption of pork indicate that the highest rates occur usually in the fall and winter. However, the survey averages for cured pork consumption, particularly for these low-income households, were apparently reduced in the fall and winter quarters by the decrease in pork production and relative high prices that occurred in late 1965 and early 1966.

Seasonality in Food Dollars

Money value per person for food at home showed very little seasonal variation in the United States and the four regions. However, there were some differences in the annual average values among the regions. These averaged about \$9.60 per person for a week in the Northeast, \$9.10 in the West, \$8.70 in the North Central and \$8.00 in the South. The value of home-produced food per person was notably higher in the summer in the three regions outside the West.

There was little season to season variation in value per person of all food consumed at home by urban and rural nonfarm households. Among farm households, the spring to summer increase and the summer to fall decrease amounted to about 10 percent. This season to season change came from the home-produced food in the farm households which averaged \$3.21 per person in the summer compared with about \$2.50 in the spring and fall.

Little seasonal variation was found in the shares of food groups in the total value of food consumed, except for fresh vegetables and fruits in the

summer. The shares of these foods were higher for that period in most of the regions and urbanizations. In general, there was considerable homogeneity in money value patterns. The four regions and three urbanizations spent their food dollar in much the same way throughout the four seasons. Between 35 cents and 40 cents of the dollar was spent for meat, poultry, fish and eggs in each regional-urbanization subgroup of the household population. About 25 cents was divided between milk products and the flour and cereal products. Between 15 and 20 cents was spent for all fresh and processed vegetables and fruits, and a little more than 20 cents went for all other food.

Summary and Implications

The key findings regarding seasonality of diets and food consumption pose challenges for consumer educators and for public policymakers. Just what can be done to improve poor diets in the spring of the year when consumption of citrus and of dark green and deep yellow vegetables is seasonally low? The problem was particularly serious among rural households of the North Central and South.

During summer most families used more fresh vegetables and fruits so the problems with vitamin A and ascorbic acid were reduced. But the calcium problem became aggravated in many urban households across the country when children were eating more meals at home. Thereby, they added to calcium requirements from at-home food supplies during the period of slightly lower consumption of milk per person. Rural people used relatively less citrus than urban, resulting in ascorbic acid being a problem nutrient not only in the spring but even in the fall and winter when citrus supplies increased seasonally.

The unfavorable dietary variations in the seasons are generally accentuated by the food budget constraints among low-income households. However, the considerable expansion of the Food Stamp Program in the last two years has undoubtedly improved the diets of many families through the year.

The findings that total food budgets and the division of the food dollar among food groups vary so little from season to season are important facts for consumer educators and policymakers. Improvements in supplies of vitamin A and ascorbic acid, calcium, and iron apparently must come from shifts within food groups or in the composition of individual foods. Emphasis on home preservation of seasonal surpluses is supported, but even greater emphasis on foods high in vitamin A and ascorbic acid is warranted. Recipe and menu innovators should be challenged to help solve these dietary problems at minimum costs in money and food pattern alteration.

Government administrators and scientists are already investigating possibilities of changing standards for enrichment with iron and calcium. Industry-Government discussions of the ascorbic acid content of fruit drinks have been started. Public and scientific awareness of the specific needs for dietary improvements and insistence on their activation are vital to widespread solution of these dietary problems. Perhaps a special milk

program for summer months could be developed to supplement the school milk and school lunch programs. On the other hand, expansion of the Food Stamp Program and/or the proposed Family Assistance Plan may be the preferred way of supporting much-needed minimum levels for food budgets and diets. During the coming months we can expect continued public discussion of alternative ways of meeting the goal of good diets for all.

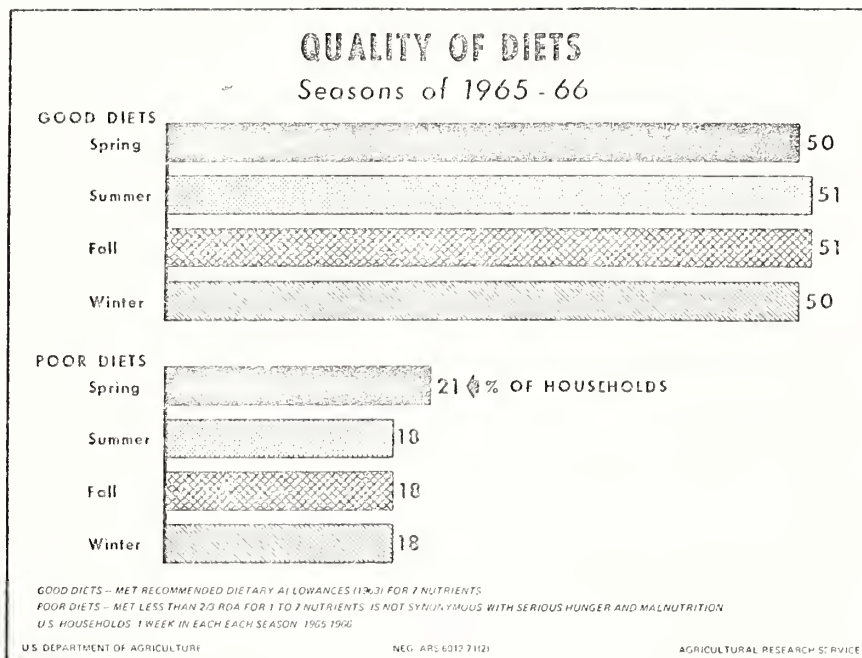


Figure 1

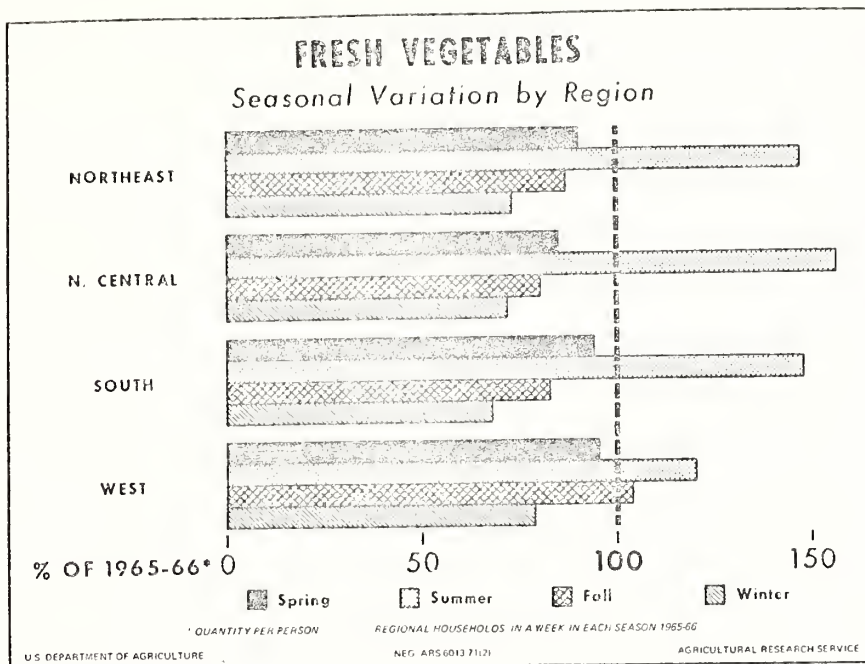


Figure 2

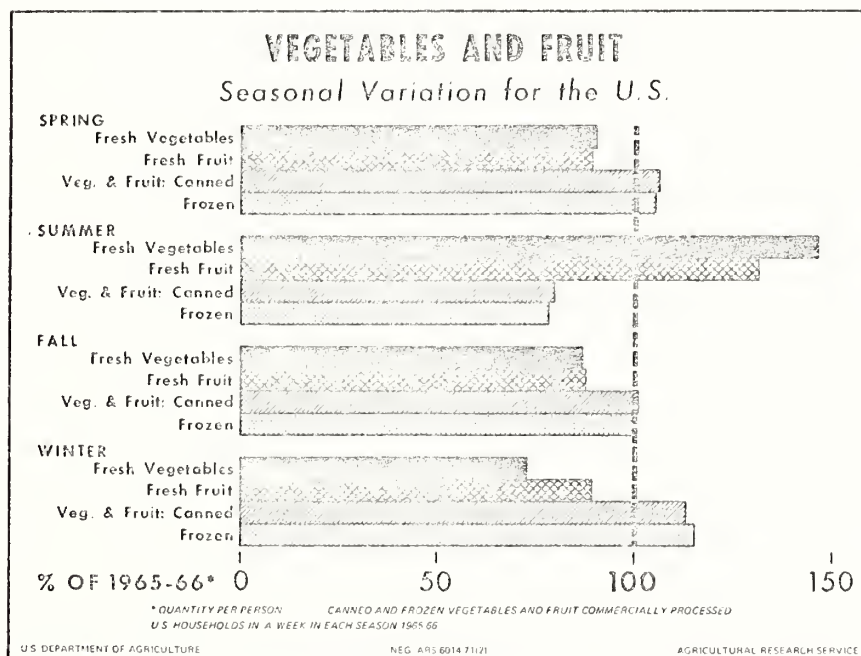


Figure 3

Table 1.--Quality of diets in the United States by region, urbanization, and for low-income households during the year and seasons, 1965-66

Quality of diets by year and season	United States	Region				Urbanization			Low- income <u>1/</u>
		North- east	North Central	South	West	Urban	Rural nonfarm	Rural farm	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Good diets <u>2/</u>									
Year-----	50.3	53.1	48.3	50.3	49.0	49.9	50.4	54.0	38.8
Spring-----	49.5	52.7	48.1	47.5	51.5	50.2	47.8	48.5	37.4
Summer-----	50.9	51.5	52.1	51.1	47.0	49.7	51.7	59.7	40.6
Fall-----	50.7	52.9	45.4	52.1	53.5	50.7	50.0	52.9	41.7
Winter-----	50.0	55.3	47.2	50.8	43.9	48.9	52.2	54.4	35.7
Poor diets <u>3/</u>									
Year-----	18.6	15.4	19.5	21.1	16.5	18.1	20.0	18.1	31.9
Spring-----	21.0	17.4	22.2	24.2	18.0	20.6	21.8	22.8	36.0
Summer-----	17.9	14.9	17.6	19.9	18.7	18.4	17.8	13.1	30.9
Fall-----	17.5	15.3	19.6	20.2	12.2	16.8	19.4	19.0	29.6
Winter-----	17.7	14.1	18.6	20.1	17.1	16.7	20.9	17.8	30.3

1/ Low-income households had disposable income below \$3,000 in preceding year.

2/ Diets rated "good" met the recommended dietary allowances (1963) for 7 nutrients.

3/ Diets rated "poor" met less than two-thirds RDA for 1 to 7 nutrients. This rating is not synonymous with serious hunger and malnutrition.

Table 2.--Proportions of household diets providing NRC allowances and less than two-thirds of allowances for ascorbic acid, vitamin A value, and calcium in the United States by region and urbanization, and for low-income households during the year and seasons, 1965-66 ^{1/}

Nutrients by year and season	United States	Region				Urbanization			Low- income ^{2/}
		North- east	North Central	South	West	Urban	Rural nonfarm	Rural farm	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
ASCORBIC ACID									
Providing allowance									
Year-----	75.1	80.8	72.6	72.1	76.6	76.6	71.4	72.2	62.1
Spring-----	73.0	79.1	71.1	68.1	76.7	75.0	68.6	65.6	58.3
Summer-----	77.6	82.8	75.7	75.4	77.4	77.7	76.2	80.3	67.5
Fall-----	73.1	76.2	69.3	71.5	78.7	75.5	67.6	68.4	61.6
Winter-----	76.5	85.1	74.2	72.9	73.7	77.8	73.1	73.9	61.9
Providing less than two-thirds of allowance									
Year-----	10.3	7.2	10.9	12.9	9.0	9.4	12.3	12.5	20.4
Spring-----	12.9	9.2	14.5	15.8	10.0	12.0	14.8	16.7	25.2
Summer-----	8.9	7.0	8.2	10.3	9.9	9.0	9.0	7.7	17.5
Fall-----	10.7	7.4	12.4	13.8	6.6	9.5	13.5	13.7	20.4
Winter-----	8.8	5.1	8.1	11.9	9.4	7.4	12.0	12.5	17.3
VITAMIN A VALUE									
Providing allowance									
Year-----	76.5	79.0	73.8	74.8	80.9	77.2	74.1	76.7	66.5
Spring-----	74.2	76.2	72.9	71.6	79.4	75.7	71.0	69.8	63.9
Summer-----	78.6	82.1	76.6	75.9	83.2	79.6	75.8	79.7	67.4
Fall-----	78.1	79.8	73.2	77.5	85.8	78.5	76.2	81.2	70.1
Winter-----	74.8	77.9	72.1	74.3	75.3	75.2	73.4	75.9	64.7
Providing less than two-thirds of allowance									
Year-----	7.7	6.3	8.0	10.0	4.4	7.0	9.6	8.1	16.2
Spring-----	9.5	7.7	8.7	13.3	5.7	8.6	11.7	11.7	18.5
Summer-----	6.7	4.6	7.5	9.0	3.5	5.9	9.0	6.1	15.2
Fall-----	6.9	5.9	7.0	9.5	2.9	6.4	8.4	6.6	14.8
Winter-----	7.8	7.1	9.0	8.5	5.5	7.2	9.4	8.2	16.1
CALCIUM									
Providing allowance									
Year-----	69.4	69.2	68.8	70.3	69.8	67.9	72.8	76.4	62.4
Spring-----	69.6	69.9	69.2	70.4	68.8	68.0	73.1	74.9	64.4
Summer-----	67.5	65.5	69.4	68.3	65.4	66.1	69.6	75.1	62.5
Fall-----	71.0	69.3	68.9	71.3	76.4	69.0	74.4	78.2	62.7
Winter-----	70.3	72.0	67.9	71.6	68.2	68.3	74.4	77.6	59.8
Providing less than two-thirds of allowance									
Year-----	7.7	7.5	8.0	8.0	6.8	8.1	6.5	5.9	13.0
Spring-----	7.9	6.6	8.2	8.1	8.4	8.4	6.5	6.8	12.5
Summer-----	9.2	9.1	9.8	9.3	7.3	10.1	6.8	6.4	15.6
Fall-----	6.3	7.6	5.9	6.6	4.6	6.8	5.3	5.3	10.6
Winter-----	7.1	6.4	7.7	7.4	7.0	7.3	7.0	5.1	13.8

^{1/} National Research Council's recommended dietary allowances (1963) were used for comparison.

^{2/} Low-income households had disposable income below \$3,000 in preceding year.

Table 3.--Contribution of fruits and vegetables to ascorbic acid supplied by food consumed at home per person in a day, United States by region and urbanization, year and seasons 1965-66 ^{1/}

Food sources by seasons	United States	Region				Urbanization		
		North-east	North Central	South	West	Urban	Rural nonfarm	Rural farm
<u>Contribution in Milligrams</u>								
Fruits								
Year-----	46	54	46	41	47	49	42	37
Spring-----	48	57	48	39	52	51	43	37
Summer-----	44	50	43	39	45	45	41	38
Fall-----	42	51	39	38	43	46	35	31
Winter-----	52	59	53	47	50	55	47	43
Vegetables								
Year-----	44	44	42	48	43	43	46	52
Spring-----	42	42	38	44	41	42	41	42
Summer-----	50	48	49	53	46	45	56	65
Fall-----	45	44	39	50	47	44	46	52
Winter-----	41	43	39	43	40	40	43	44
<u>Percentage of Total Supply</u>								
Fruits								
Year-----	45	49	46	41	46	47	42	37
Spring-----	47	50	48	42	49	48	45	41
Summer-----	41	45	41	38	43	44	38	33
Fall-----	43	48	43	39	42	45	38	34
Winter-----	50	52	51	47	49	51	46	44
Vegetables								
Year-----	43	40	42	48	42	41	47	52
Spring-----	41	37	39	47	39	40	43	47
Summer-----	47	43	46	52	44	44	51	57
Fall-----	46	41	43	52	46	43	49	56
Winter-----	39	37	37	43	39	38	43	45

^{1/} Daily average per person computed from (a) total supply of the nutrients from household supplies for a week divided by 7 and (b) by household size (21 meals at home equal one person).

Table 4.--Contribution of vegetables, milk and milk products, liver, and fruits to vitamin A value supplied by food consumed at home per person in a day, United States by region and urbanization, year and seasons, 1965-66 1/

Food sources by seasons	United States	Region				Urbanization		
		North- east	North Central	South	West	Urban	Rural nonfarm	Rural farm
<u>Contribution in International Units</u>								
Vegetables								
Year-----	3,280	3,290	2,820	3,610	3,470	3,290	3,200	3,530
Spring-----	3,120	3,290	2,860	3,050	3,490	3,300	2,730	2,710
Summer-----	2,890	3,070	2,680	2,900	3,010	2,910	2,810	2,970
Fall-----	3,850	3,560	2,930	4,770	4,030	3,700	3,970	4,840
Winter-----	3,310	3,230	2,800	3,800	3,320	3,250	3,340	3,830
Milk, cream, cheese								
Year-----	920	1,000	1,000	780	960	930	900	1,000
Spring-----	910	980	980	780	940	910	890	1,000
Summer-----	900	930	1,000	790	920	900	870	1,000
Fall-----	950	1,030	1,020	790	1,030	950	920	990
Winter-----	930	1,050	1,000	770	960	940	900	1,030
Liver								
Year-----	770	880	680	750	800	840	620	650
Spring-----	840	1,040	750	770	870	990	530	600
Summer-----	670	690	530	710	820	700	610	560
Fall-----	810	890	650	890	790	890	620	690
Winter-----	760	900	800	630	710	780	700	820
Fruits								
Year-----	640	640	620	630	740	650	620	690
Spring-----	540	570	500	490	670	570	480	470
Summer-----	1,230	1,170	1,150	1,300	1,350	1,210	1,250	1,370
Fall-----	400	420	370	340	560	420	360	330
Winter-----	380	400	420	310	380	370	370	400
<u>Percentage of Total Supply</u>								
Vegetables								
Year-----	44	43	40	48	44	43	44	45
Spring-----	42	42	40	44	44	43	42	40
Summer-----	38	40	37	39	38	39	38	38
Fall-----	48	46	42	55	48	47	51	55
Winter-----	46	43	40	52	46	45	46	48
Milk, cream, cheese								
Year-----	12	13	14	10	12	12	12	13
Spring-----	12	13	14	11	12	12	14	15
Summer-----	12	12	14	11	12	12	12	13
Fall-----	12	13	15	9	12	12	12	11
Winter-----	13	14	14	11	13	13	12	13
Liver								
Year-----	10	11	10	10	10	11	8	8
Spring-----	12	13	11	11	11	13	8	9
Summer-----	9	9	7	10	10	9	8	7
Fall-----	10	11	9	10	9	11	8	8
Winter-----	10	12	12	9	10	11	10	10
Fruits								
Year-----	9	8	9	8	9	9	9	9
Spring-----	7	7	7	7	8	7	7	7
Summer-----	16	15	16	18	17	16	17	17
Fall-----	5	5	5	4	7	5	5	4
Winter-----	5	5	6	4	5	5	5	5

1/ Daily average per person computed from (a) total supply of the nutrients from household food supplies for a week divided by 7 and (b) by household size (21 meals at home equal one person).

Table 5.--Contribution of milk and milk products and enriched grain products to calcium supplied by food consumed at home per person in a day, United States by region and and urbanization, year and seasons, 1965-66 1/

Food sources by seasons	United States	Region				Urbanization		
		North-east	North Central	South	West	Urban	Rural nonfarm	Rural farm
<u>Contribution in Milligrams</u>								
Milk, cream, cheese								
Year-----	682	715	715	610	722	677	687	712
Spring-----	673	704	694	618	699	668	680	692
Summer-----	658	655	709	599	696	652	661	696
Fall-----	698	740	725	613	761	696	700	715
Winter-----	702	762	735	613	732	696	707	757
Milk (fluid, canned, and dried)								
Year-----	528	560	553	473	546	518	539	572
Spring-----	514	543	526	477	522	508	523	542
Summer-----	496	493	535	454	519	485	509	545
Fall-----	548	596	578	473	573	540	557	592
Winter-----	555	605	576	489	571	543	570	625
Enriched or whole grain products								
Year-----	147	112	116	212	118	126	184	209
Spring-----	146	110	119	210	118	128	177	206
Summer-----	142	110	113	203	112	122	175	206
Fall-----	151	115	117	221	122	128	194	218
Winter-----	148	115	117	214	119	127	192	204
<u>Percentage of Total Supply</u>								
Milk, cream, cheese								
Year-----	61	64	64	54	64	62	59	58
Spring-----	60	64	63	55	63	61	59	57
Summer-----	61	63	64	55	64	62	58	57
Fall-----	61	65	65	53	65	62	59	57
Winter-----	62	66	65	55	65	63	59	60
Milk (fluid, canned, and dried)								
Year-----	47	50	50	42	49	48	46	46
Spring-----	46	49	48	42	47	47	45	45
Summer-----	46	47	48	41	48	46	45	45
Fall-----	48	53	52	41	49	48	47	48
Winter-----	49	52	51	44	51	49	48	50
Enriched or whole grain products								
Year-----	13	10	10	19	10	12	16	17
Spring-----	13	10	11	19	11	12	15	17
Summer-----	13	11	10	19	10	12	15	17
Fall-----	13	10	10	19	10	11	16	18
Winter-----	13	10	10	19	11	12	16	16

1/ Daily average per person computed from (a) total supply of the nutrients from household food supplies divided by 7 and (b) by household size (21 meals at home equal one person).

Table 6.--Quantity of selected food groups consumed at home per person in a week in the United States by region, urbanization, and for low-income households during the year and seasons, 1965-66 ^{1/}

Food group and season	United States	Region				Urbanization			Low-income ^{2/}
		North-east	North Central	South	West	Urban	Rural nonfarm	Rural farm	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Fresh vegetables (excl. potatoes)									
Year-----	2.45	2.34	2.34	2.62	2.45	2.30	2.59	3.36	2.58
Spring-----	2.23	2.11	2.00	2.48	2.34	2.22	2.18	2.43	2.18
Summer-----	3.60	3.46	3.67	3.89	2.96	3.14	4.17	5.59	3.98
Fall-----	2.13	2.08	1.89	2.18	2.56	2.09	2.11	2.61	2.21
Winter-----	1.79	1.76	1.69	1.79	1.94	1.72	1.86	2.24	1.86
Dark green and deep yellow									
Year-----	.33	.37	.26	.34	.37	.33	.31	.36	.39
Spring-----	.32	.34	.26	.33	.35	.34	.27	.27	.36
Summer-----	.28	.34	.23	.25	.32	.28	.25	.29	.27
Fall-----	.41	.47	.28	.45	.47	.40	.42	.52	.54
Winter-----	.31	.33	.24	.31	.34	.31	.30	.37	.42
Tomatoes									
Year-----	.43	.37	.43	.48	.41	.39	.47	.62	.44
Spring-----	.33	.31	.28	.40	.32	.33	.34	.28	.28
Summer-----	.80	.64	.92	.91	.57	.68	.95	1.34	.95
Fall-----	.32	.28	.29	.29	.47	.31	.32	.40	.30
Winter-----	.24	.26	.19	.24	.25	.23	.25	.30	.18
Fresh fruits									
Year-----	2.79	2.78	2.78	2.74	2.94	2.73	2.80	3.30	2.60
Spring-----	2.49	2.70	2.52	2.21	2.71	2.52	2.43	2.43	2.06
Summer-----	3.67	3.24	3.43	4.14	3.78	3.44	3.91	4.85	3.97
Fall-----	2.45	2.62	2.39	2.25	2.68	2.44	2.41	2.67	2.28
Winter-----	2.51	2.57	2.74	2.23	2.57	2.51	2.40	2.96	2.08
Citrus									
Year-----	.73	.84	.72	.66	.74	.79	.65	.55	.56
Spring-----	.76	.88	.74	.62	.93	.83	.67	.50	.68
Summer-----	.33	.41	.34	.28	.32	.35	.32	.26	.25
Fall-----	.68	.83	.58	.71	.51	.73	.57	.56	.48
Winter-----	1.19	1.22	1.25	1.08	1.23	1.25	1.03	1.09	.85
Commercially canned vegetables and fruits									
Year-----	1.29	1.34	1.34	1.16	1.44	1.35	1.27	.84	1.06
Spring-----	1.38	1.43	1.47	1.21	1.47	1.44	1.31	1.02	1.13
Summer-----	1.03	1.08	1.02	.92	1.25	1.09	1.03	.57	.79
Fall-----	1.31	1.34	1.33	1.19	1.48	1.39	1.24	.82	1.14
Winter-----	1.47	1.48	1.57	1.33	1.56	1.50	1.50	1.03	1.21

See footnotes at end of table.

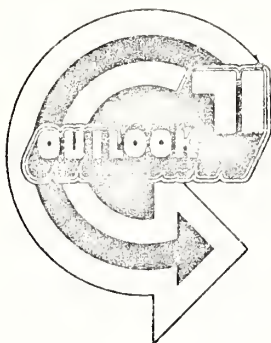
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Table 6.--Quantity of selected food groups consumed at home per person in a week in the United States by region, urbanization, and for low-income households during the year and seasons, 1965-66 1/--Continued

Food group and season	United States	Region				Urbanization			Low-income <u>2/</u>
		North-east	North Central	South	West	Urban	Rural nonfarm	Rural farm	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Commercially frozen vegetables and fruits									
Year-----	.19	.24	.16	.16	.23	.22	.14	.07	.09
Spring-----	.20	.25	.17	.17	.25	.23	.16	.10	.10
Summer-----	.15	.17	.13	.13	.20	.18	.12	.05	.07
Fall-----	.19	.26	.16	.14	.24	.22	.14	.06	.08
Winter-----	.22	.29	.17	.21	.24	.26	.15	.08	.10
Milk and milk products (calcium equivalent basis)									
Year-----	8.87	9.31	9.30	7.94	9.39	8.81	8.93	9.29	7.61
Spring-----	8.75	9.16	9.02	8.04	9.09	8.68	8.84	9.03	7.77
Summer-----	8.55	8.52	9.22	7.78	9.06	8.47	8.59	9.08	7.54
Fall-----	9.08	9.64	9.44	7.97	9.90	9.05	9.11	9.34	8.08
Winter-----	9.14	9.92	9.56	7.97	9.52	9.05	9.19	9.89	6.99
Fluid milk (calcium equivalent basis)									
Year-----	6.05	6.62	6.70	5.08	6.02	6.02	5.98	6.66	4.54
Spring-----	5.82	6.32	6.40	4.96	5.68	5.82	5.66	6.31	4.52
Summer-----	5.66	5.84	6.24	5.02	5.72	5.59	5.61	6.42	4.21
Fall-----	6.36	7.10	7.17	5.11	6.35	6.34	6.30	6.81	5.17
Winter-----	6.40	7.21	7.06	5.24	6.30	6.33	6.38	7.31	4.29
Ice cream									
Year-----	.38	.40	.42	.34	.36	.38	.38	.40	.26
Spring-----	.40	.42	.44	.36	.37	.39	.41	.44	.29
Summer-----	.45	.44	.51	.42	.38	.45	.42	.47	.30
Fall-----	.36	.39	.37	.31	.38	.36	.35	.34	.25
Winter-----	.33	.37	.36	.27	.30	.33	.32	.31	.18

1/ Household consumption at home divided by household size based on 21 meals at home equal to one person.

2/ Low income households had disposable income below \$3,000 in preceding year.



UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

DELIVERY OF HEALTH CARE IN RURAL AREAS

Talk by Bond L. Bible
Secretary, AMA Council on Rural Health
American Medical Association
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 9:30 A.M., Wednesday, February 24, 1971

Health service provision for all Americans has become a topic for serious debate across the land. Trends in the U.S. toward urbanization and specialization in medical practice have resulted in a concentration of physicians in larger cities. Fewer and fewer physicians are moving into rural areas to replace those who are disappearing from the rural scene. Death, failure of personal health, and sheer overwork are responsible for the loss. A resulting maldistribution of physicians in certain areas leaves some rural communities without immediate access to medical care. In addition to the problems in communication and transportation imposed upon rural dwellers by the distances separating them, we find that rural people in the more sparsely populated areas have only about one-half the access to physicians, nurses, dentists, hospital beds, and other health resources when compared with the rest of the Nation. The health problems of rural areas are further compounded by environmental hazards, an aging population, and a high degree of poverty. In addition, an increasing number of patients, greater demand for services, more difficult patient problems, more complex diagnostic and therapeutic procedures, and a greater need for continuing medical education are all placing increasing demands upon the physician's time and skill.

Variations in Patterns of Living

Feedback from the community study leaders in the 21 community action study groups of the National Commission on Community Health Services points up one major conclusion -- that there is no single blueprint for study and solution of health problems that is applicable to all communities in all situations. The cultural base of any community is important in determining how human and natural resources are treated.

That the concept of region is often applicable to the development of health facilities is borne out by past regional developments in the Southwest, Northwest, and Far West.

Wide variations in patterns of living in rural areas are evidenced. About 14,000,000 rural people continue to live at a depressed level. Some may live in the midst of relative prosperity, but are bypassed by economic and social change. Rural America accounts for 27 percent of our total population, but 40 percent of the poor.

Some communities have become stranded where farmland has been depleted or forests and mines have become exhausted. In such places, people have little access to health or other community services. The greatest concentration of the deteriorating rural communities is in the Southeastern and Southwestern states. Others are scattered throughout the country. Rural people of the Great Plains share in general rural economic and social improvements, but suffer a growing handicap in their efforts to maintain adequate community health services as the population of the counties continues to decrease. Ease of transportation compensates to some degree for the greater distances to community services. The lack of arrangements to meet unexpected health emergencies affects all families in the Great Plains region.

Health care for migrant farm workers poses difficulties in all areas of the U.S. Working in isolated communities, uncertain income, lack of resident status, and limited availability of health services, are problems generally faced by migratory farm families.

Suitable Delivery Systems are Important

With the changing patterns of life -- demographically, economically, socially -- different systems for the delivery of health care services are needed. Such suggested designs will provide directions and guidelines for rural community health planning groups to consider and, hopefully, to be able to revise and adapt to meet their local requirements.

Patients and families can more easily come to the physician and his supporting staff than in the past. Increasingly, physicians' offices are clustering around community hospitals in the larger towns. Often, the newer hospitals contain office facilities for group practice, so that the emergency room, clinical diagnostic laboratory, and radiology facilities can be jointly used for ambulant outpatients as well as inpatients. Wherever it is not possible for dispersed rural populations to come to a town because of age, infirmity, or depressed economic conditions, techniques can be used to take a mobile office with allied health professionals and a simple laboratory to the people. In some very isolated rural areas it might prove more feasible to develop small permanent satellite health centers with a well-designed clinic building staffed by a physician's assistant in residence who could serve in a similar role to that of a corpsman in an isolated military post or on a ship. Other allied health professionals could be added as needed. The problem of ready communication with the physician is soluble by techniques developed for transmission of data in the space program.

The dimensions of a health service area within which residents should join to carry out integrated planning for delivery of health services are likely to be already marked by the trading or community patterns that have been drawn by rural and city residents together as they drive to work, to shop, to college, to visit, and to recreational and cultural facilities.

Each community needs to make a critical appraisal of its situation to determine the most feasible arrangement for delivery of its health care. Some questions to consider are: 1) Is there sufficient population base at various age levels to warrant patient demand for one or more physicians? 2) Is the community capable of providing necessary financial resources to support personnel and facilities? 3) Where do people travel for medical care at present? 4) Are there readily accessible major health centers available in the larger community area?

Levels of Health Services

Three levels of health services should be visualized--which can be called primary, secondary, and tertiary. Although each level can be identified more or less distinctly, there will be some overlap. More important, however, there must be a high degree of coordination among the various levels.

Primary care encompasses those services provided at the patient's first point of contact with the health system. This contact may be with such sources of care as a solo practicing physician, a medical group, a hospital outpatient department or emergency department, a neighborhood health center, or a health department clinic.

Secondary care encompasses most medical and surgical diagnostic and therapeutic health services such as diagnostic radiology and laboratory studies, referrals for consultation, general surgery, most medical and pediatric disorders requiring hospitalization, and all but the most unusual obstetrical problems.

Tertiary care is provided at major hospital centers to patients requiring diagnostic, therapeutic, or rehabilitative services that transcend the capabilities of the average community hospital. All levels are of equal importance to the total pattern of health care in the community.

Primary care must be decentralized. Most, though not all, secondary care is provided at community hospitals, which are relatively centralized. Major hospital centers providing tertiary care should be highly centralized.

The bulk of health services is provided in the primary care setting. Most illnesses and accidents are diagnosed and treated without need for hospitalization or referral to consultants; this also applies, of course, to health examinations and other preventive services.

It is clear that primary health care must be conveniently accessible to patients, whether in a physician's office, a group practice, a hospital, a health center, or some other facility. Some hospitals will provide a certain amount of primary care through their outpatient and emergency facilities.

In any health care system, several aspects of that care are of crucial importance. One aspect relates to comprehensive care which commonly refers to the breadth of medical services, including education, prevention, diagnosis, treatment, and rehabilitation. Another aspect is the accessibility of care which assumes that services are available whenever and wherever the patient needs them, and that the point of entry (presumably the primary provider) is well defined. A third aspect is quality of care which is difficult to define since the definition should both account for the goals of medical care and allow for measurement of goal attainment.

Some Unique Delivery Systems Help to Meet the Needs

A Community Health Program in Lafayette County, Florida is under the supervision of the Division of Ambulatory Medicine and Community Programs of the Department of Medicine at the University of Florida's College of Medicine. The program started on January 6, 1969, as a community-oriented, comprehensive health care service for the residents of Lafayette County, Florida.

In Mayo there is a recently constructed County health clinic which has ample space for the ambulatory care of all County residents. It houses the office of the County health nurse and serves as the base of operations for the Lafayette County Health Center.

The purposes of the clinic are threefold: 1) To provide a teaching and training experience for medical and nursing students and house staff in community medicine. 2) To furnish medical service to a community where it has not been readily available. 3) To establish for the College of Medicine a facility where the problems of getting health care to people and getting people in need of health care to health professionals may be critically studied.

Citizens of Lafayette County comprise the Community Advisory Committee which was formed to help in the planning and operation of this health center. They insisted upon a fee for service for those able to pay. This has helped to make the clinic self-supporting and has emphasized that this is not a project directed primarily at indigents but to all residents regardless of their ability to pay. The clinic is demonstrating the potential of being self-supporting. Since opening, they have averaged approximately 25 patients a day and slightly less than 100 house calls a month.

One resident in medicine and 3 or 4 medical students live in Mayo. They are paid a small stipend to cover their additional living expenses. They staff the clinic which has liberal hours from 8:30 a.m. to 9:00 p.m. They are available, however, 24 hours a day, 7 days a week.

There were two initial goals of this project. First, it had to be successful teaching and training experience for the medical student. Second, the citizens of Lafayette County had to be receptive to this concept of health care. Both of these goals have been met. At the present time this program in the delivery of rural health services is working well.

Oklahoma's Project Responsibility provides a plan which involves a cooperative effort between the University of Oklahoma's Medical Center, the Oklahoma State Medical Association, and other related medical organizations. Basically, it is a four-phase program, with each phase running concurrently. The plan provides for: 1) a state-wide inventory of the health science personnel now serving the State of Oklahoma; 2) a projection of current and anticipated health needs based on step 1 and in consideration of public and professional demands; 3) a reevaluation of the medical school curriculum and its hospital training program in family medicine with a strengthening of the allied health programs in relation to social needs; and 4) the initiation of a pilot study program in the delivery of health services in a community of need. For the pilot study program, the community's health center will be considered as an integral part of the University of Oklahoma's Medical Center teaching program.

The town of Wakita, located 135 miles northwest of Oklahoma City, population 450, has been selected as the site for the first pilot program. The citizens of Wakita have built a modern community health center which was dedicated on September 14, 1968.

Wakita is one of five small towns in Grant County. About 3,500 people live within a 25-mile radius of Wakita. The population has been relatively stable for the past decade. No other physicians or medical facilities are available within 40 miles. The County is predominantly an agricultural area with a few oil wells. The Wakita Clinic includes 7 beds for acute illness, 20 beds for extended care, and 24 beds for nursing home patients in addition to offices for 3 physicians, and a pharmacy.

A Pilot Project in Rural Medical Care in New Mexico is in operation at the Hope Medical Center in Estancia, population 800. The project was developed by the chairmen of the Departments of Community Medicine and Epidemiology and Pediatrics at the University of New Mexico School of Medicine. It is being supported by Sears-Roebuck Foundation and the New Mexico Regional Medical Program.

The Hope Medical Center was originally built for a family physician with consultation from the Sears-Roebuck Foundation's Community Medical Assistance Plan. However, it had not been staffed for several years.

The project provides a rural-urban link for the delivery of health care by a specially trained nurse and a receptionist-technician working as a part of a team under rigorous medical supervision and consultation from the University.

The plan for the project involves these steps:

- 1) A comprehensive survey of the people was made to collect data on the present health status of the population.
- 2) A designed pattern of preparation for the nurse was developed by heads of various departments of the medical school, and included some instruction in nurse midwifery. A very careful selection of the scope of practice for the nurse was determined by the panel of physicians relative to providing care, health maintenance, services in selected illnesses, and emergency care. It was agreed that at no time would the nurse make a decision which might be considered as medical diagnosis, but she would make observations of signs and symptoms for the supervising physicians to consider. In selected instances, predetermined standing orders would be instituted.
- 3) The health center has x-ray as well as laboratory facilities. All x-rays which the nurse is asked to take are sent by bus to the medical school for the physicians to review in preparing for subsequent telephone discussion with the nurse on any patient requiring further assistance from the physician. The physicians are available by telephone at all times, and the two physicians in charge of the project give one-half day a week in the center, at which time patients needing their particular attention are seen.
- 4) The nurse is required to cover the health center 5 days a week from 8:30 a.m. to 5:00 p.m., with the exception of Wednesday morning. At this time each week, she travels to the medical school to a) attend weekly pediatric rounds; and b) discuss specific problems with other department heads, and secure reading materials. These weekly visits are considered her planned continuing education.
- 5) The respective medical and nursing practice acts were reviewed with the attorney general of the State in order to determine that the scope of planned practice was consistent with current requirements.

The clinic was opened on February 10, 1969, and the program as planned is working effectively. The staff is composed of a receptionist-technician, and a clerk. The program is operating on a fee system basis. The hope is that eventually it will be self-supporting.

The project will be under periodic evaluation to determine its future.

The Rural Health Project in Southern Monterey County (California) is an attempt by a private group of physicians to demonstrate that, with the collaboration of the county medical society, they can responsibly and efficiently conduct a program to provide comprehensive medical care to indigent patients.

Within the purposes of PL 89-749, the Rural Health Project is an experiment concerned with developing a new way of organizing indigent care and at the same time providing the basis for comprehensive health planning at the local level.

The basic objective of the overall program is to provide comprehensive, high quality medical care to all eligible residents, including migrant farm workers. This care is provided in the same facilities and by the same staff as are utilized by the high income residents of the area. There is no segregation of care. A thorough medical evaluation of each patient is attempted, as well as the establishment of a continuing relationship with the physician and other members of the health team. In this manner, not only treatment for current medical problems is provided, but also education of the patient in the proper utilization of routine preventive care.

The grantee for the Rural Health Project (RHP) is the Monterey County Medical Society. The Southern Monterey County Medical Group is the delegate agency and provides physician services under the OEO grant. It is a private group practice operating a major clinic in King City, and two smaller offices in Greenfield and Soledad. There are 10 physicians in the group covering internal medicine, surgery, and general practice. A number of visiting staff provides specialized services. The George L. Mee Memorial Hospital and the Pioneer Hacienda Nursing Home are collaborating agencies in the project.

Physician services provided at the clinics, and laboratory and x-ray services at the hospital, are offered from 9:00 a.m. to 5:30 p.m., 5 days a week. The King City clinic is also open 5 nights a week to accommodate RHP patients who cannot come to the office during the day. The only charge for services rendered for beneficiaries of the Project is a \$1.00 fee for each prescription filled. This fee is waived on request. All medical services provided under the OEO grant are on a fee-for-service basis.

Transportation from all sections of the Project area to the clinic and to the hospital is provided. Two station wagons and one small van, equipped for wheelchair patients, are used. This service is available to all grant patients on request.

A research component is also embodied in the Project plan. The use of public health and social welfare professionals in a private group and the feasibility of offering careers in the health field to members of indigent families are being demonstrated. "Health Aides" have been recruited from the eligible population itself and are being used to establish communication with the target population. Public health professionals added to the group's staff under the grant include a public health physician, a public health nurse and a health educator.

The population of the Project area is about 17,000. An additional seasonal influx of 6,000 migrant farm workers from March to October will run the total to 23,000. King City is a town of 4,000 people. The primary industry in the area is agriculture.

A total of 4,500 patients are seen monthly by the 10 full-time physicians and 15 days a month of specialists at the three group clinics. There is an average of 6,500 OEO eligible patients in the area. Together, the clinics and the Rural Health Project have a total of about 80 supporting (non-physician) staff members. The Project has been in operation since June 11, 1967.

The "Cross-Road Medical Center," which involves the establishment of a multiple physicians' center, is sponsored by the Committee on Rural Medical Service of the Medical Society of the State of New York. The Committee has just finished a pilot study in three rural areas, composed of 30,000 people who are without a physician. Results from the study will be utilized in planning for the medical centers. The centers would embrace a geographical area, which is without a physician, of possibly four or five adjoining communities or towns cooperating to provide a population base which could support quality medical care (approximately 10,000 to 30,000). Each center would be staffed by physicians from the surrounding area on a part-time basis, until permanent physicians can be obtained. The communities will provide a well-equipped facility, with a modern laboratory and staffed with trained personnel. These centers would be related to the hospitals and other medical centers in nearby cities, and the physicians would have staff appointments at these hospitals. The staffing of the centers may include specialists as well as family physicians. The determination of the type of specialist can best be ascertained by size, age, and general composition of the surrounding population. The Medical Society will utilize all resources available in the recruitment of physicians for the designated center.

Medex. In Seattle, the University of Washington Medical School and the Washington State Medical Association's Education and Research Foundation have set up a program to train former medical corpsmen, who are brought into Seattle for a three-month brush-up course on civilian medical procedures. After graduation, these Medex (from the French term, *medecin extension*--literally, "physician extension") are sent out across the State to work in the offices of physicians who agree to act as their preceptors and to employ them at salaries ranging from \$8,000 to \$12,000 a year after 12 months of on-the-job training. (While learning they receive \$500 and up a month.)

The first 14 Medex are now on the job and sharply boosting physician productivity and morale.

MEDEX is not a radical innovation in health manpower, nor is it a new training program being developed within a university. It is a joint project of potential uses of the MEDEX personnel and the developers-trainers-evaluators of the MEDEX program. It is an overdue effort resulting from a global perspective to pull together existing resources to meet a growing need in community health. With the fulfillment of present projected plans, the MEDEX program will be operative in 14 states by the summer of 1971.

Lawrence County, Alabama. An ideal rural Appalachian County in which to test innovations in the delivery of comprehensive health care is Lawrence County in northwest Alabama. The number of health personnel in the County has been rapidly decreasing without replacements. There are only six physicians serving a County of more than 30,000 persons.

The Tri-County Appalachian Regional Health Planning Commission in Alabama has achieved encouraging results in bringing together local medical, health care, and community leaders working in concert with University of Alabama officials in Birmingham to seek solutions to selected health care problems in the County.

Project goals include development and establishment of a model system for delivering comprehensive health care services to a rural community, establishment of evaluation, criteria, and identification of an effective financial supporting mechanism. The project is funded by the Appalachian Regional Commission beginning September 1, 1970.

The model has two components of patient contact -- one, a family care unit and second, an "outreach" team. The outreach teams introduce families to the community health service personnel who initiate the history-taking process and refer the family to the family care unit.

The procedure for delivering primary care is functionally designed to best meet the needs of families within the community. The principles of family practice, including emphasis on outpatient service and preventive health care, will receive first priority. An advisory board from Lawrence County will assist in implementation of the program.

The University of Alabama School of Medicine, through its newly established Division of Family and Ambulatory Medicine, is giving full support to the project. The University will assume responsibility for recruiting former medical corpsmen to work as physicians' assistants with the physicians of Lawrence County. This procedure will be similar to the MEDEX program in the State of Washington.

Community Involvement

This brief review of several systems of health care delivery clearly illustrates that the search for rural health manpower must generally be geared to an area-wide health care system. Nowhere can this be done better than in the small towns with which we are most concerned. They can identify their own nurses, active or retired, technicians, teachers who have health skills, or others who can be trained to perform relatively simple, but nonetheless critical, services. A nurse with special training or other specifically trained assistants can relieve the physician of many time-consuming professional activities and allow him to use his professional skills much more productively. The focus in these endeavors is on community consciousness. The greatest investments will be in deliberate planning based on a belief in the rights of all citizens to have access to good health care. With modest expenditure, small communities can establish efficient emergency care through the use of everything from a pool of private automobiles to well-equipped ambulances or (with greater expense) helicopters. With prudent screening in each locality, advance arrangements can be made to have groups of patients seen with the least possible loss of time at the physician's office.

It seems especially important for organizations concerned with the delivery of health care to rural people to be deeply involved with comprehensive health planning groups at all community levels. It is essential for rural leadership to be represented on community health planning councils so that they can speak for rural people and ensure good planning for future health care programs in their communities.

The elements of planning for the delivery of rural health services have only been sketched. What is most urgently required is a strategy for its development and implementation, an entirely local responsibility if it is to be successful.

Criteria for Evaluation

Communities must establish measures or criteria for evaluating a proposed model for the delivery of health care services which may be adaptable to the local situation. Evaluation procedures should be built into each step in the total process encompassed in planning and implementing the health care system.

Logically, the process begins with an analysis of the local situation or medical service area. Such an area may include several communities and towns and may be multi-county in size, depending upon the population density and trading area. Facts are needed with regard to the health experiences and health needs of the people in the area. An inventory of the health manpower and health facilities available in the area should be made as well as health resources which may be called upon beyond that area. Consideration must also be given to the relationship of any new plan or model for health care delivery to the existing methods available.

Criteria for measurement of ideal community health services may be summarized as follows: 1) methods must be devised to utilize physicians and allied health personnel in the most efficient and economical way; 2) there must be adequate facilities in the medical service area -- hospitals, laboratories, extended care facilities, and nursing homes -- to provide needed services; 3) there must be an effective organizational and delivery pattern of services so that professional personnel and facilities are efficiently utilized to provide high quality health care; 4) there must be adequate funds or sound financing mechanisms to permit construction of needed facilities and utilization of services; and 5) the community itself must recognize the advantages of excellent health care, should seek to secure these advantages by establishing requisite facilities, and by attracting needed physicians and other health professionals where feasible or combining with other communities in an enlarged medical service area.

Utilization of Resources

Education for health is a fundamental aspect of community health services and is basic to every health program. It should stimulate each individual to assume responsibility for maintaining personal health throughout life and to

participate in community health activities. The community has a responsibility for developing an organized and continuing educational program concerning health resources for its residents. Each individual has a personal responsibility for making full use of available resources.

The objectives for health education, then, are to interest each individual in his own health and the means to improve it; to teach him where health services are available; to motivate him to use these services intelligently, and to enable him to discriminate between scientific health care and quackery.

The widespread concern about health manpower has extended beyond that of the growing need for physicians. We are now equally concerned with the preparation and effective utilization of those professions and services supportive to the physician in providing health care. To utilize the services of the physician most efficiently, a nucleus of appropriate people in the community can provide valuable assistance. The concept of the health team is not new, only the size of the team is being enlarged. The physician-nurse arrangement has today been augmented with a cadre of 13 or 14 additional allied health personnel. Problems are found in both the availability of personnel and in the manner in which they are utilized. A major concern is to increase the number of personnel in the existing, recognized allied health occupations for both rural and urban areas. Closely related to this need is that of finding ways to capitalize on the potential of health manpower who achieved their competence through other than traditional means. The potential contributions that ex-military corpsmen might make in the civilian health sector have focused attention on the need to adapt requirements for entry level employment in many allied health occupations in order to increase the pool of qualified personnel.

Systems for delivery of health services to rural areas must be adaptable to local situations and needs. Ideally provision should be developed for one door service for all economic levels. The following are some of the health personnel and facilities that should be considered in planning for rural health care delivery systems:

1. Primary care team, e.g., physician, nurse, dentist, laboratory x-ray for preventative, curative, and rehabilitative services.
2. Public health nursing for case finding and follow-up care.
3. Health aides and social services.
4. Transportation.
5. Relationship with regional hospitals and community colleges.
6. Relationship with medical schools, teaching hospitals, e.g., preceptorship programs and resident training in community medicine.
7. Satellite clinics in sparsely populated areas.
8. Appropriate technology, e.g., telephone EKGs, etc.

9. Assistant physician and/or nurse practitioner.
10. Competent administrator and office staff.
11. Solid referral capability to medical centers.
12. Adequate physician facilities to house above services.

It is important to have a health system developed with community support. Health professionals are more likely to be attracted to communities where an interesting system exists than to traditional rural solo practice.

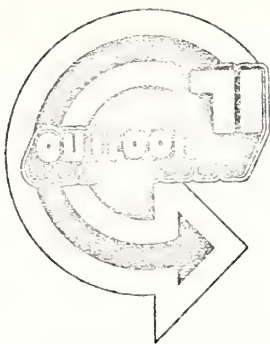
Partners in Health Care

Multiple experiments in health service provision are being tested by governmental agencies, medical schools, and organized medicine. At no time have I seen legitimate evidence of a real commitment to planning for solutions to the dilemma of distribution, delivery, and quality of health services in this country. At no point have organized medicine, Federal health agencies, or community leadership formed a true partnership sharing resources, expertise, and concern.

In the past, rural populations traveling to urban living carried their physicians with them. Today's yearning for escape from urban pressures back to the rural scene may provide a platform for new rural health systems.

This paper reviewed some basic principles in planning health care delivery systems in rural areas. Critical problems are the need for more health manpower, correction of maldistribution of health personnel, and more efficient utilization of physicians and allied health manpower. The fact that most people in our sparsely populated rural areas must travel long distances to obtain services poses very complex problems in providing adequate systems for delivery of health care.

With greater utilization of the health team concept, with increases of productivity of health team members aided by modern technology, and with education of patients about proper utilization of health services, progress can and will be made.



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UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR POULTRY AND EGGS

Talk by William E. Cathcart
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D. C. 9:15 A.M., Wednesday, February 24, 1971

To broiler and egg producers, 1970 showed a good beginning but a disappointing finish. Producer income from poultry and eggs in 1970 fell while production costs, particularly feed, rose sharply. Egg production was up slightly but egg prices were sharply lower during April-December. Broiler meat output last year was up around 10 percent but was more than offset by lower broiler prices.

The year turned out better than early expectations for turkey producers. Despite about a 9 percent increase in turkey meat output, prices received by producers held above a year earlier until the closing months of 1970.

Large supplies in 1970 resulted in poultry and red meat consumption totaling a record 236 pounds per person, around 6 pounds more than in 1969. Consumption of chicken increased 3 pounds to about 42 pounds. Turkey consumption was about equal to the 8.3 pounds used in 1969. Per capita beef consumption increased more than 2 pounds and pork was up about a pound.

Production of eggs and turkeys in 1971 may total above year-earlier levels. Broiler output for all of 1971 may total about the same as in 1970, with lower output in the first half and higher output in the second half. Prices for broilers, turkeys, and eggs probably will continue below 1970 through mid-1971. Broiler and egg prices will strengthen and average higher in the last half of 1971 while turkey prices may remain lower.

Costs of producing poultry and eggs during 1971 will be higher. Prices paid for feed will be substantially higher, at least during most of 1971. Feed costs typically account for around half of the total costs of producing eggs and around two-thirds of the cost of producing broilers



and turkeys. Costs of other production items are expected to continue their upward trend of recent years. As of January 15, the index of prices paid by farmers for production items, (including feed), interest, taxes, and wage rates averaged about 4 percent above a year earlier. The feed component of that index was up 8 percent.

Eggs

Egg producers responded to the relatively high egg prices in late 1969 and early 1970 by increasing hatchery activity. During the first 7 months of 1970 there were 14 percent or about 23.5 million more egg-type pullets hatched than in the same months of 1969. Typically most of these pullets would enter the laying flock in the last half of 1970. The large hatch concerned producer groups and an all out effort was made to encourage producers to cut hatchings and to speed up culling of old flocks in an attempt to hold egg production at a reasonable level.

Industry action and lower chick prices resulted in egg-type hatchery activity falling sharply during August to 77 percent of August 1969. Hatchings recovered in September but for the August-December period were down 5 percent from the same months of 1969. Weekly reports indicate that hatchery activity has remained below a year ago in early 1971. For example, hatchings of egg-type chicks in California, Georgia, Illinois, Mississippi, and Washington during January was about a tenth below last January and likely will remain lower through mid-year. Also, eggs set in these States during the last 3 weeks of January were about 12 percent below a year ago.

At the same time that hatchery activity slowed, culling of older laying flocks gained momentum. Marketings of mature light-type hens through Federally inspected slaughter plants increased sharply and during July-December went up 22 percent.

The sharp increase in culling held the laying flock during 1970 to moderately above a year earlier. The January 1, 1971, flock totaled 335 million--up nearly 3 percent. However, the number of pullets 3 months old or older not yet laying was about 3 percent below the 49 million of January 1, 1970.

Flock size may not change significantly during the first half of 1971 but is expected to trend downward and average near year-earlier levels by late in 1971. Addition of replacement pullets from the smaller second half 1970 hatch may be about offset by culling of old flocks.

The rate of lay, below year-earlier levels during most of 1970, was up about 1 percent on January 1. The addition of more replacement pullets and heavier culling of old flocks have reduced the average age of the laying flock. Typically a younger flock is a more productive one. Thus, the rate of lay is expected to exceed a year earlier throughout most of 1971.

With more birds and each bird laying more eggs, first half egg output will be 2 to 3 percent above the first half of 1970. Output may slip to near year-earlier levels by late 1971.

Prices received by producers for eggs in 1970 averaged about 38 cents a dozen, 2 cents below 1969. Egg prices have been below a year earlier since last March. Prices in January this year averaged 36 cents a dozen, down 2 cents from December and 17 cents below January 1970. Prices likely will show only the usual seasonal decline this spring, much less than the sharp decline in 1970, and likely will remain below a year earlier. Prices may strengthen next summer and average near a year earlier in the fall.

Broilers

Broiler meat output, certified ready-to-cook, in Federally inspected processing plants in 1970 totaled a record 7.2 billion pounds, ready-to-cook weight--up 10 percent from 1969. Output in the first half of the year was up around 14 percent. Summer production continued near the high levels of spring but was only 9 percent above summer 1969. Fall output exhibited more than the usual seasonal decline and averaged near a year earlier. The number of broilers raised and the average liveweight continued the upward trend of past years. The number of broilers raised during the past 10 years has expanded at an annual average rate of about 5 percent--more than 100 million broilers a year. During this period average liveweight of broilers marketed increased by 1 percent a year. Marketings through Federally inspected plants last year totaled about 2.8 billion birds, 10 percent above 1969, and the average liveweight rose 1 percent.

Current indications point to smaller broiler production for the first half of 1971. Output may gain in the last half and about offset the first half decline. Thus, output may total about the same as in 1970.

Weekly broiler chick placements have declined in recent months, and generally have been below year-earlier levels since August. In addition, the broiler hatchery supply flock, based on pullet chicks placed 7 to 14 months earlier, reached a record high in January 1971. It has been declining, however, and probably will move below year-earlier levels in the spring. Pullet placements for the hatchery supply flock have been near or below a year earlier since April 1970.

In response to lower broiler prices and rising feed costs in recent months, producers may keep production below last year during the first half of 1971. Last half production may move upward in contrast to a year ago when production fell sharply from the high levels of the first half of the year.

The historical relationships between the ratio of feed and chick costs to broiler prices and the change in broiler production the following year would suggest an increase of around 5 percent in output for 1971. However, production likely will increase less because of the sharp price rise for feed in recent months and expected large pork supplies in the first half, which will tend to depress broiler prices. Based on broiler chick placements, the number of broilers available for marketing during January-March will be about 2 percent below the like period of 1970. Also broiler type eggs in incubators on January 1 were down 5 percent.



Broiler prices declined in early 1970 largely as a result of sharp increases in broiler output. Prices stayed below a year earlier during 1970, although broiler output in the closing months of the year was trimmed to near year-earlier levels. Larger supplies of red meats, primarily pork, last fall depressed broiler prices and held them below the previous year. Wholesale broiler prices in 9 cities for the last quarter of 1970 averaged 25.1 cents a pound, more than 2 cents below a year earlier.

Prices for broilers are expected to remain lower through mid-1971. Prices may strengthen in the summer and average moderately above the second half of 1970. Sharply larger pork supplies during the first half of 1971 will likely hold broiler prices at low levels despite a small reduction in broiler meat output.

Turkey

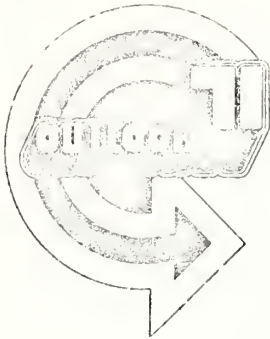
Turkey production this year may show a further increase from the 116 million raised in 1970. Higher turkey prices in 1970 more than offset increased feed costs, resulting in an increase in the profitability ratio. The historical relationship between the ratio of feed and poult costs to turkey prices and the change in production the following year would indicate a moderate increase in 1970 turkey production. However, this relationship does not fully reflect the sharp increase in feed prices and the declining turkey prices in recent months.

Turkey producers indicated plans as of January 1 to raise about 115 million turkeys--about 1 million less than in 1970. Nearly all of the decrease in numbers would be in heavy breeds. Intentions reports have been a fairly good indicator of production in most years. However, for the 1971 crop to decline from 1970, poult production during the seasonally heavy March-July period would have to drop sharply to offset increased poult production that has occurred since August 1970.

Turkey meat output will be up substantially for the first half of 1971. Poult production during September 1970-January 1971 was up 48 percent to 14.4 million poults. These birds will provide slaughter supplies in the first half of 1971. In addition, eggs in incubators on January 1 were up 18 percent from January 1, 1970. The size of the 1971 crop will depend largely on the March-June poult production which normally accounts for around three-fourths of the year's production.

Live turkey prices exceeded year-earlier levels during most of 1970, averaging 23.4 cents a pound, 2 cents above 1969. Prices received by producers last fall remained near summer levels in contrast to the sharp-run up in the closing months of 1970. Prices through mid-1971 likely will average moderately below year-earlier levels. Turkey meat supplies will be plentiful during this period of seasonally light marketings. January 1 cold storage stocks were up about 25 million pounds from a year ago, and production during the early months of 1971 is expected to be up sharply. Turkeys will also face strong competition from continued large broiler supplies and sharply increased supplies of pork.



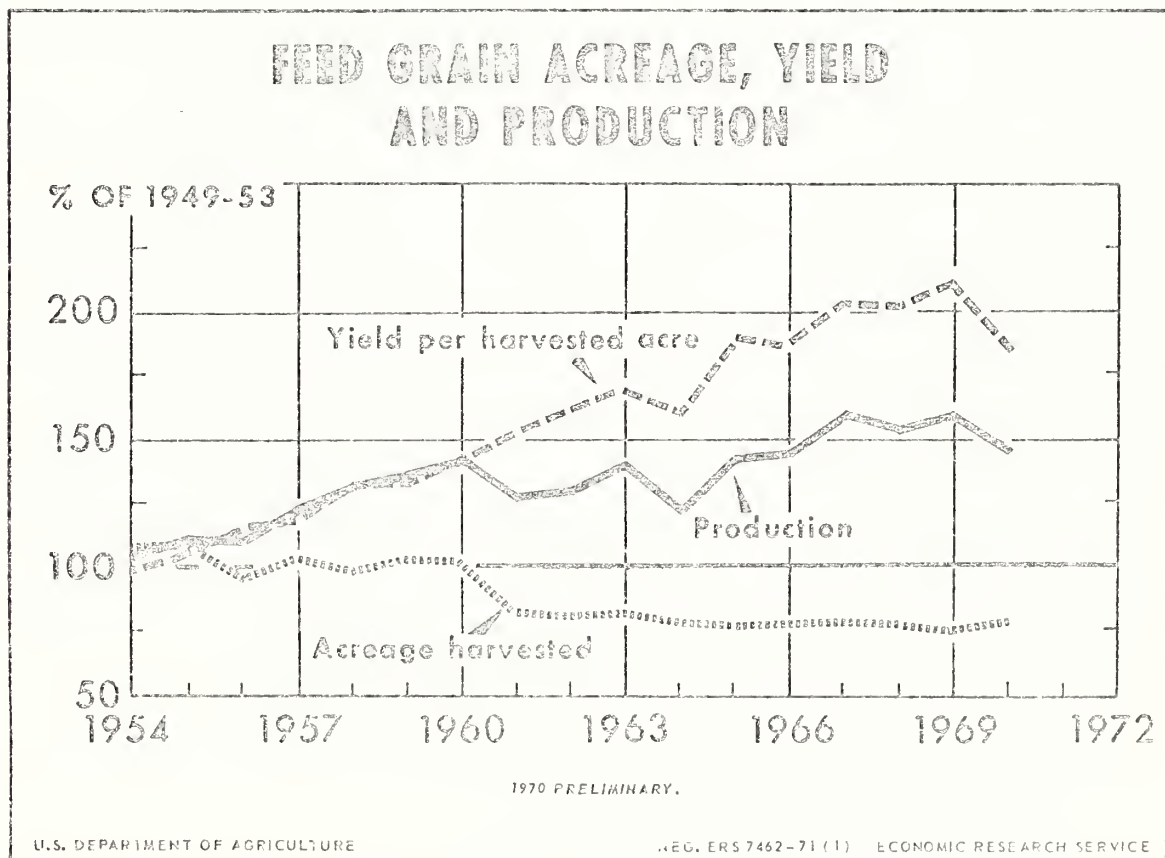


UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR FEED

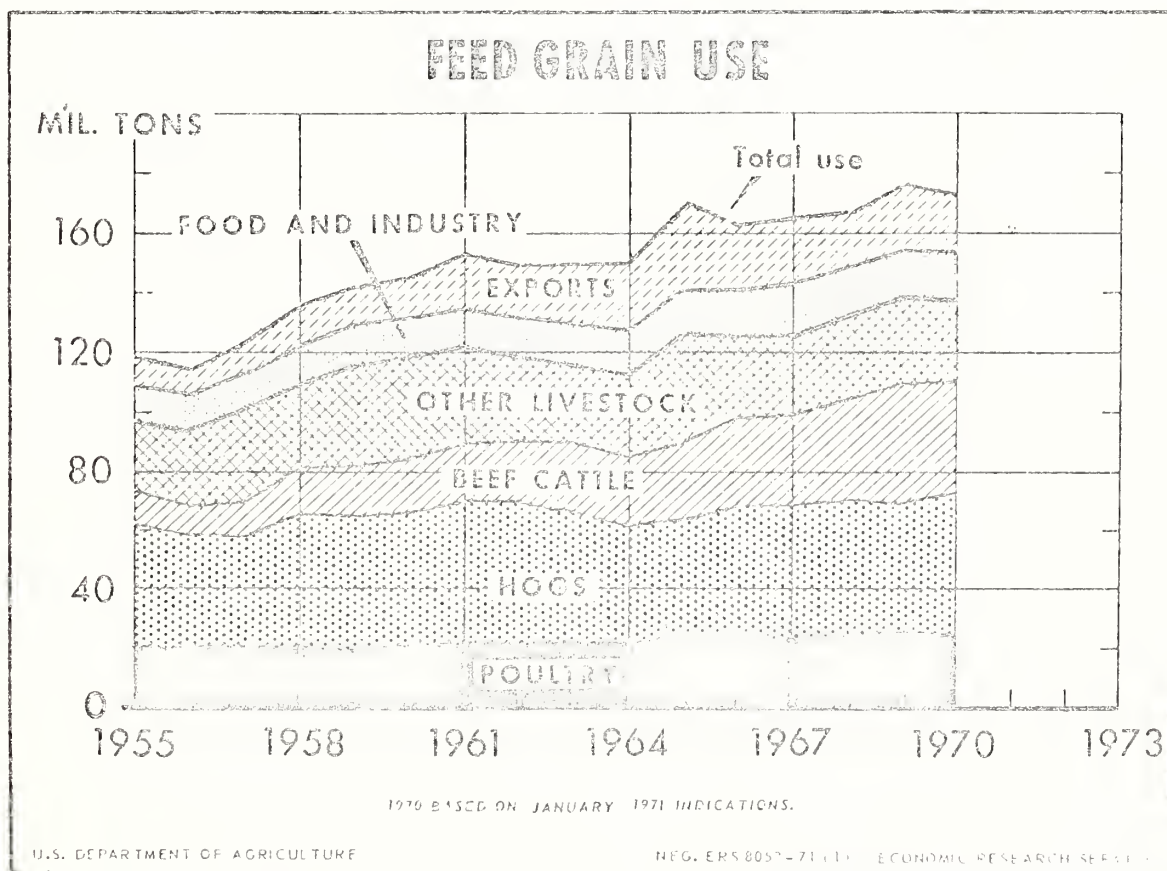
Talk by Malcolm Clough
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 9:40 A.M., Wednesday, February 24, 1971

The upward trend in feed grain yields--underway for a number of years--was abruptly halted in 1970. Influenced by Southern corn leaf blight and dry weather, feed grain yield per acre dropped 13%, the sharpest year-to-year drop in 20 years. Production dropped 9% from the near-record crop of 1969. While the 1970 crop exceeded production for any year prior to 1967 it was short in terms of total use, which has been going up at a rapid pace in recent years.



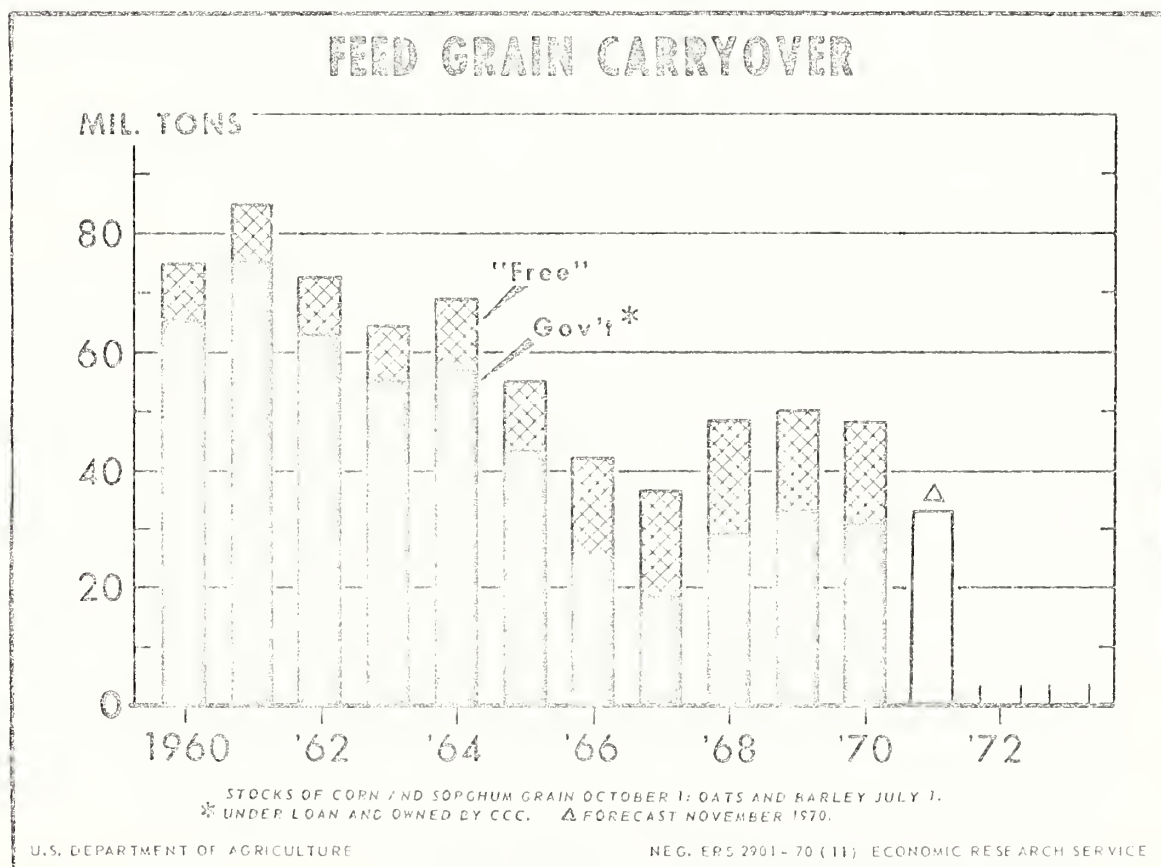
In 1971, farmers plan to increase feed grain plantings by nearly 7 million acres, based on the January 1 special survey of 35 States. The prospective 1971 corn acreage is up 4 million acres, and a 3 million acre increase is planned for sorghums. The outlook for 1971 corn production is clouded by uncertainty over recurrence of blight. Even with blight damage about the same as in 1970, but with more favorable weather in the Western Corn Belt, production on the planned acreage could be around 8 to 10% above the 1970 crop. With a favorable growing season for the other feed grains total feed grain production could increase around 10% above the short crop of 1970.

Total feed grain disappearance in 1970/71 is expected to fall a little below last year's record tonnage. During October-December both domestic use and exports were slightly above the record high in that quarter of 1969. But feed grain use is expected to fall a little below a year earlier this spring and summer. For the marketing year, total use probably will be well above the small crop, leaving a smaller carryover at the close of the 1970/71 season.

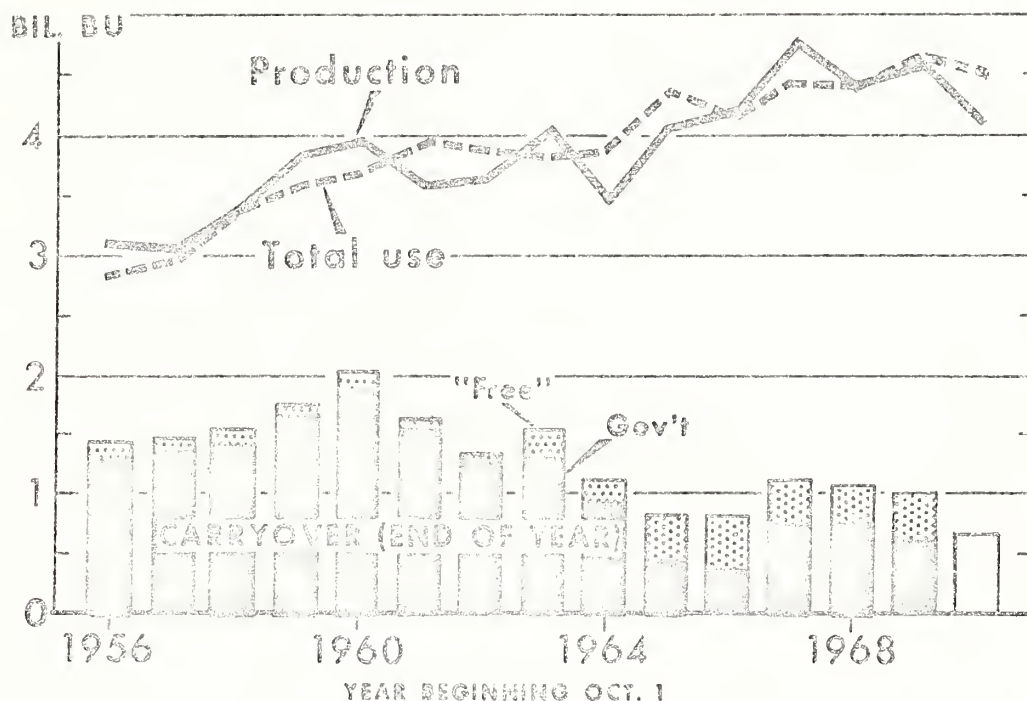


Total feed grain use has moved steadily upward since the mid-1950's, rising nearly 50% from 1955 to 1969. There has been a substantial increase in both domestic use and exports. Livestock feeding accounts for around 75 to 80% of total use. Hogs are the main consumer of feed grain, but since hog production has not shown any marked trend there has been little expansion in the tonnage fed to hogs during the past 15 years. Beef cattle were rather unimportant as consumers of feed grains 15 years ago but the marked increase of cattle feeding during the 1960's made them second only to hogs in 1969/70. The consumption by poultry has shown a fairly steady upward trend increasing about 25% during the past 10 years.

The feed grain supply for 1970/71 totaled 208 million tons, 17 million less than in 1969/70. The crop was down 15 million and carryover was 2 million smaller. Feed grain carryover reached a record 85 million tons in 1961 then dropped to a range of around 35 to 50 million tons in the past 5 years. Because of the short crop this year we will have to draw on the carryover of 48 million tons at the beginning of 1970/71--probably bringing it down to around 34 million tons--the lowest since the mid-1950's.



CORN PRODUCTION, USE, AND CARRYOVER



1970 PRELIMINARY.

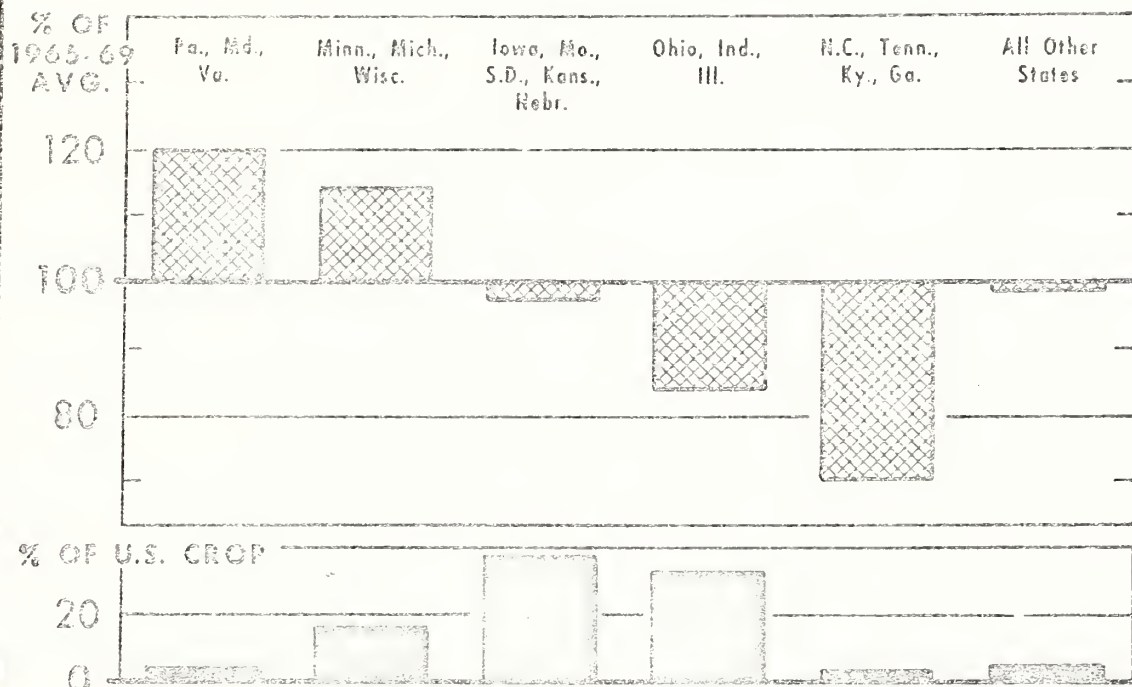
U. S. DEPARTMENT OF AGRICULTURE

NEG. ERS 1987-71 (1) ECONOMIC RESEARCH SERVICE

Corn accounts for much of the reduction in the 1970/71 feed grain supply. The corn supply of 5.1 billion bushels was 10% less than in 1969/70 and 3% below the 5 year average. Corn yields, which reached a record high of 84 bushels per acre in 1969, dropped to 72 bushels in 1970. The 1970 crop of 4.1 billion bushels was nearly 500 million below a year earlier and 650 million below the record crop of 1967.

Relatively high corn prices and less favorable livestock--feed price ratios this year are expected to bring reduced usage this spring and summer. Domestic use may be around 100 million bushels below the 4,082 million bushels used in 1969/70. Exports may be down by 100-125 million bushels from the 616 million last year. This would bring total usage down to around 4.5 billion bushels compared with a record 4.7 billion in 1969/70. With the 1970/71 corn supply off 10%, the expected total use would reduce the carryover next October 1 to around 600 to 700 million bushels from the 1 billion of last last fall.

REGIONAL CORN PRODUCTION - 1970



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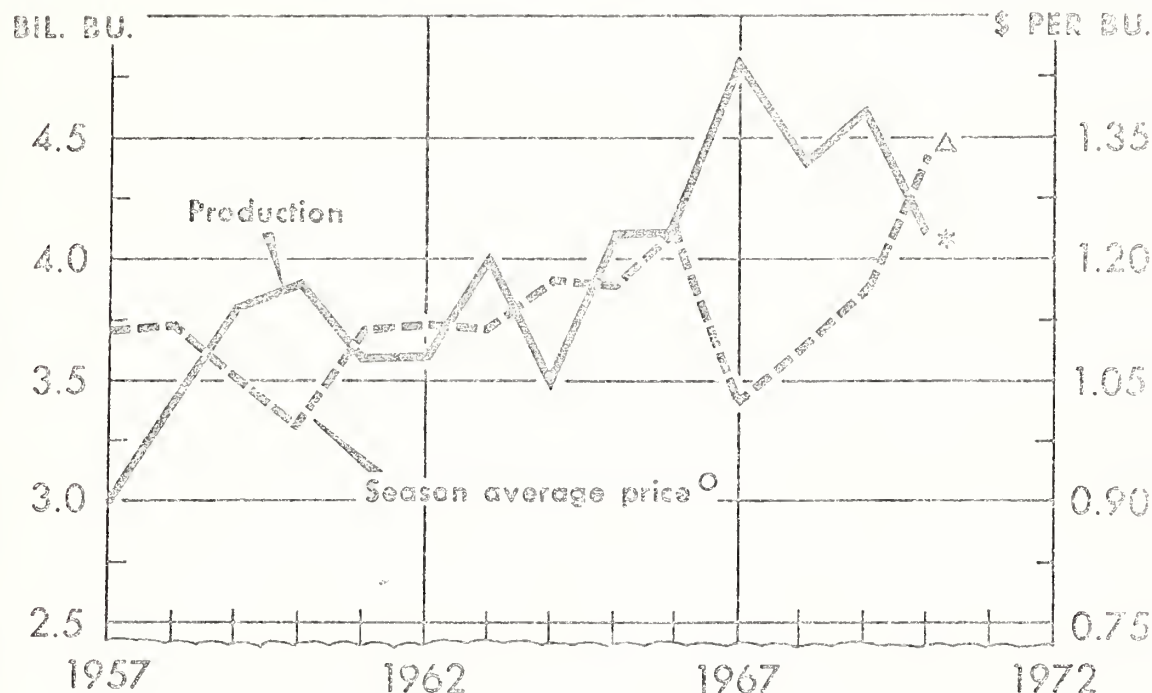
There are wide differences in corn production by areas. The 1970 crop was well above average in the northern and western sections of the Corn Belt, and in the mid-Atlantic States. But it was sharply reduced by blight in the Eastern Corn Belt and in the South. In Pennsylvania, Maryland and Virginia the crop was 20% above the 1965-69 average, but these States produce only 4 or 5% of the U.S. total. Output was 14% above average in the Lake States which produce about 15% of the U.S. crop.

In the Western Corn Belt where nearly 40% of the U.S. crop is produced, output was a little below average due largely to dry weather along with some blight damage. In Ohio, Indiana, and Illinois blight damage cut the crop by about 15% below the 5-year average. These States usually produce about a third of the U.S. total.

The Southern States were hit hard by the blight. The four leading corn producing States of the South--North Carolina, Tennessee, Kentucky, and Georgia--had only 70% of an average crop. Production in these States, however, accounts for only 5% of the U.S. total.



CORN PRODUCTION AND PRICES



○ RECEIVED BY FARMERS. △ DECEMBER 1970 ESTIMATE. * PRELIMINARY.

U.S. DEPARTMENT OF AGRICULTURE

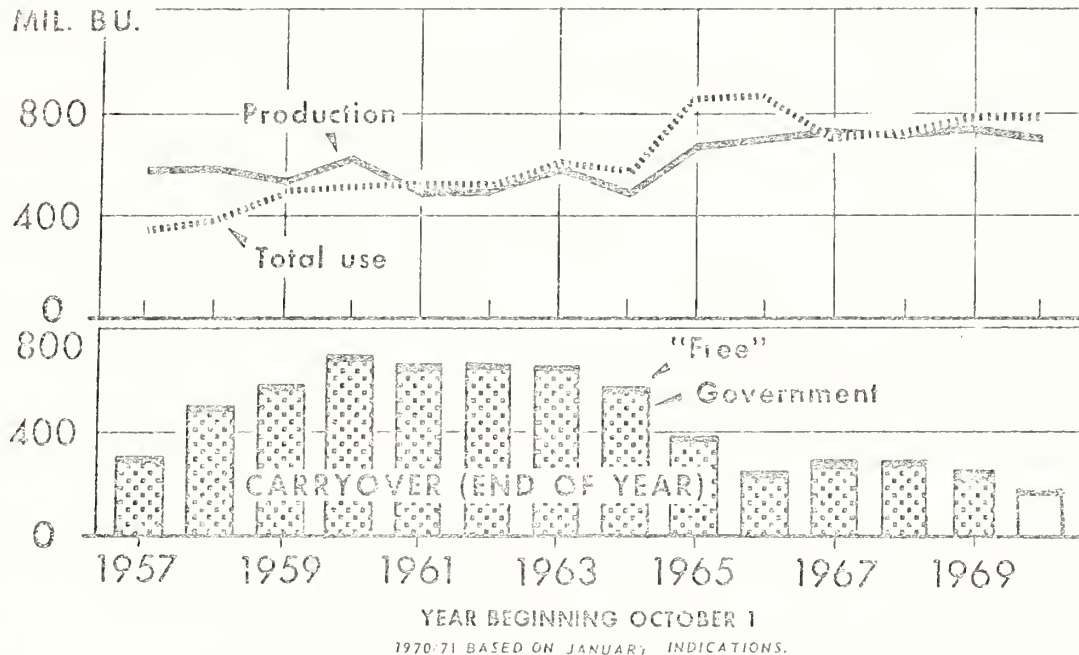
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Smaller corn crops and expanding demand have resulted in a substantial rise in corn prices since 1967/68. In 1967 the bumper crop held corn prices close to the loan rate during the entire marketing year. The 1970 crop was about 650 million bushels below the record crop that year and prices are 30 to 35 cents per bushel higher.

Prices rose sharply from June to September of 1970 reflecting adverse conditions for development of the corn crop. During October-January prices received by farmers averaged \$1.35 per bushel, 25 cents higher than in that period of last season. They are expected to continue considerably higher through the first half of 1971.

Prices this spring and summer and in 1971/72 will be influenced by 1971 crop developments. Another small crop along with the reduced carry-over into 1971/72 would hold prices at a relatively high level. However, farmers will have time to adjust their livestock feeding operations during 1971 to the less favorable livestock-feed price ratios which could mean some weakening in demand for feed in 1971/72.

SORGHUM GRAIN PRODUCTION, USE AND CARRYOVER



U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 3771-71 (1) ECONOMIC RESEARCH SERVICE

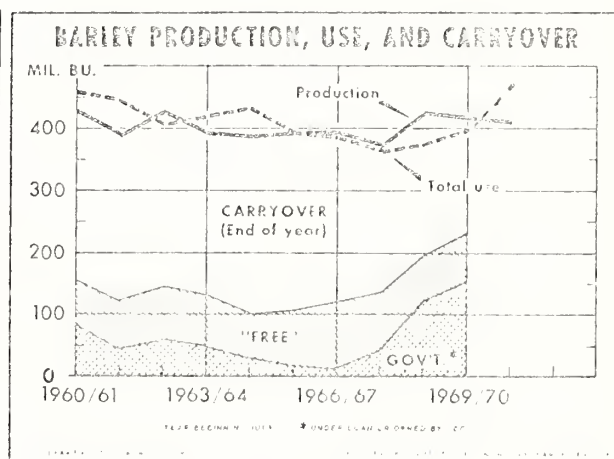
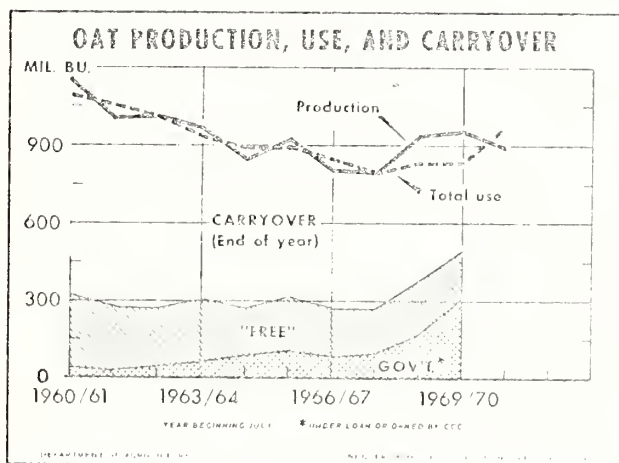
Grain sorghum production in 1970 was 7% below the 1969 crop as dry weather cut yields in the Great Plains. Strong demand is expected to push 1970/71 usage above production reducing the carryover next October 1--probably a third below the 246 million last fall. Total usage, however, may slip a little below last year's high level since less favorable cattle-feed price ratios may bring lower feeding rates this spring and summer. Foreign demand for U.S. grain sorghum is strong this season and total exports may exceed the 125 million bushels shipped in 1969/70.

On the strength of good demand and the smaller sorghum and corn crops, the average price received by farmers during October-January was \$2.04 per cwt., 12¢ higher than a year earlier. Sorghum prices, however, are low this year in relation to corn, encouraging continued heavy usage.

Farmers in a special intentions survey of January 1 indicated that they will plant about 20 million acres to sorghums in 1971, almost 3 million more than in 1970. This acreage with a normal growing season would boost 1971 production.

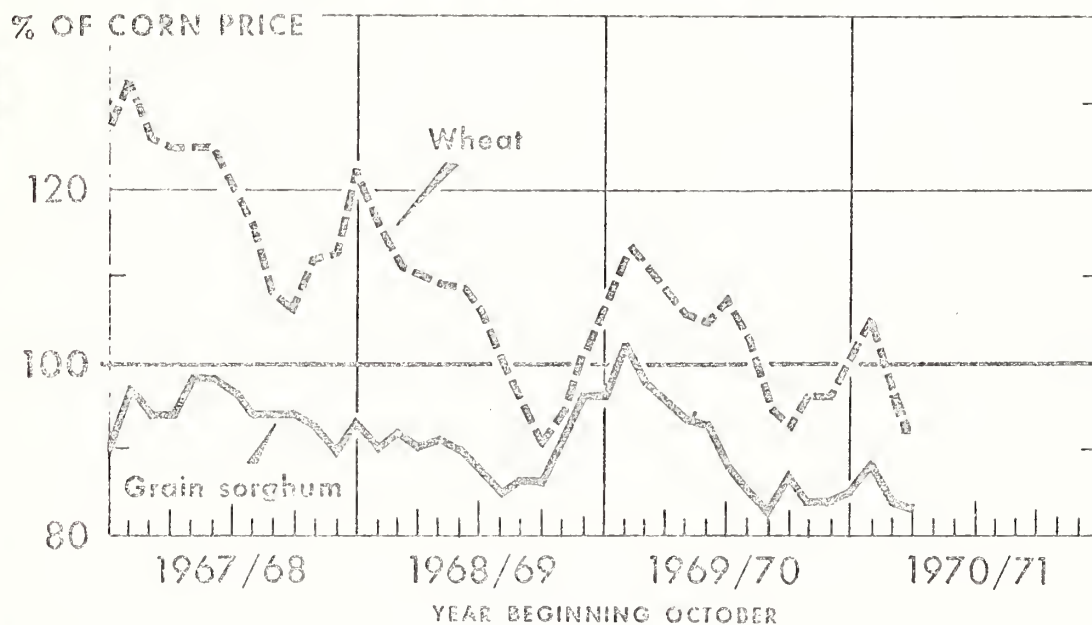
Oat production, which has been going down for a number of years, reversed this trend increasing to over 900 million bushels in 1968 and 1969. Total use did not keep pace with the larger crops and carryover rose sharply to a record 490 million bushels last summer. With oat prices relatively low this year heavy domestic use and larger exports will bring a better balance between production and use. Total use is now expected to be a little above 1970 production giving some reduction in carryover next July 1.

Most of the oat supplies are concentrated in the North Central States, which has had an important bearing on the rate of use and prices by areas. Almost two-thirds of the January 1 stocks of oats were located in Minnesota, Wisconsin, and North and South Dakota. Thus, the location of the oat surplus is fairly isolated from deficit feed areas of the East, South and West which rely heavily on shipped-in feedstuffs. This also tends to hold down grain prices in those areas containing large supplies that cannot readily be moved to areas where feed supplies are tight.



With larger barley production in 1968 and 1969, carryover also increased sharply to a record 237 million bushels last July 1. Another above-average crop in 1970 brought the 1970/71 supply to 659 million bushels, a fourth larger than the 1964-68 average. Relatively low barley prices are bringing increased consumption this year. During July-December domestic use and exports totaled 272 million bushels, 67 million more than last year. Over half of the increase was due to heavy export movement, but domestic feeding also increased significantly. Barley prices have been low in relation to corn, encouraging substitution in livestock rations. Feeding of barley increased more than 20% in the past 4 years. Total domestic use in 1970/71 is expected to be up by around 10% and exports will be much larger than in any of the past 3 years. Carryover of barley next July 1 may be down a fourth from the 1970 record high.

GRAIN SORGHUM AND WHEAT PRICES RELATIVE TO CORN *



* BASED ON PRICES RECEIVED BY FARMERS PER 100 LBS.

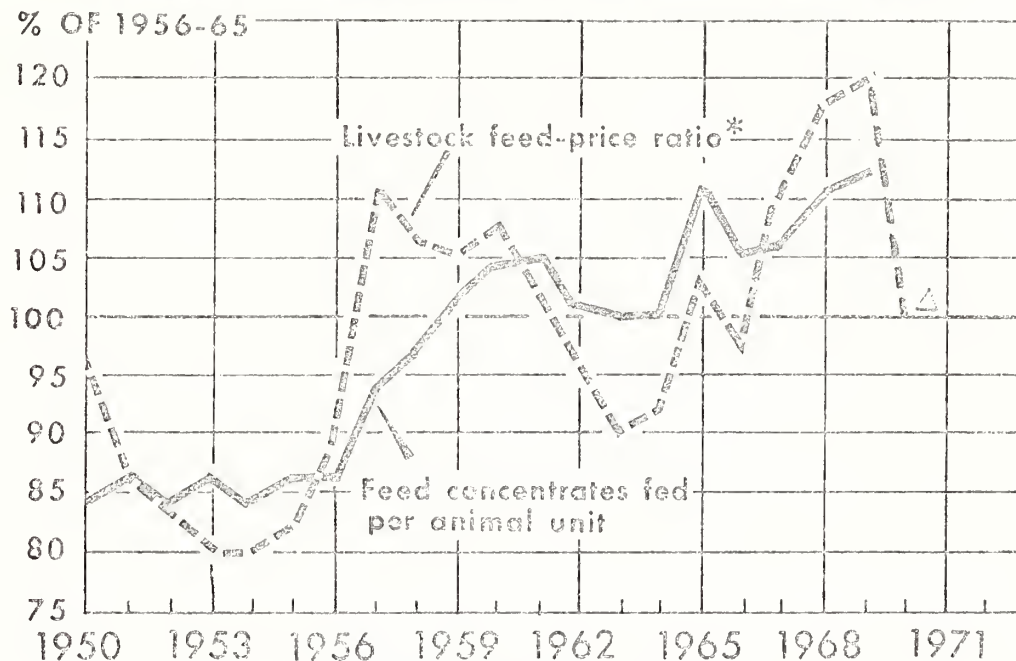
U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 8052-71 (1) ECONOMIC RESEARCH SERVICE

Relatively high corn prices this year have encouraged livestock and poultry producers to shift to other feeds. Wheat feeding has expanded rather sharply in the past 2 or 3 years as wheat has become more competitive with corn. Wheat prices were 20-30% above corn 3 years ago but dropped sharply in relation to corn in the last 2 years. Wheat prices dropped somewhat below corn in the summer of 1969 and again this last summer and fall. This has encouraged the use of wheat in livestock and poultry feeds with the quantity fed exceeding 200 million bushels a year.

The price of grain sorghum averaged 85% of corn during October-January, a little below the long-term average. Prices of oats and barley have been much lower than average in relation to corn. In January the U.S. average price of oats was \$2.09 a cwt., 45¢ cheaper than corn. Barley averaged \$2.08 a cwt., 46¢ below corn. Prices of oats and barley were only 82% of the corn price, much below the long-term average of over 90%.

FEED-PRICE RATIO AND FEEDING RATE



* YEAR BEGINNING OCTOBER

* LIVESTOCK PRICES AS RELATED TO FEED GRAINS AND HIGH-PROTEIN FEEDS.

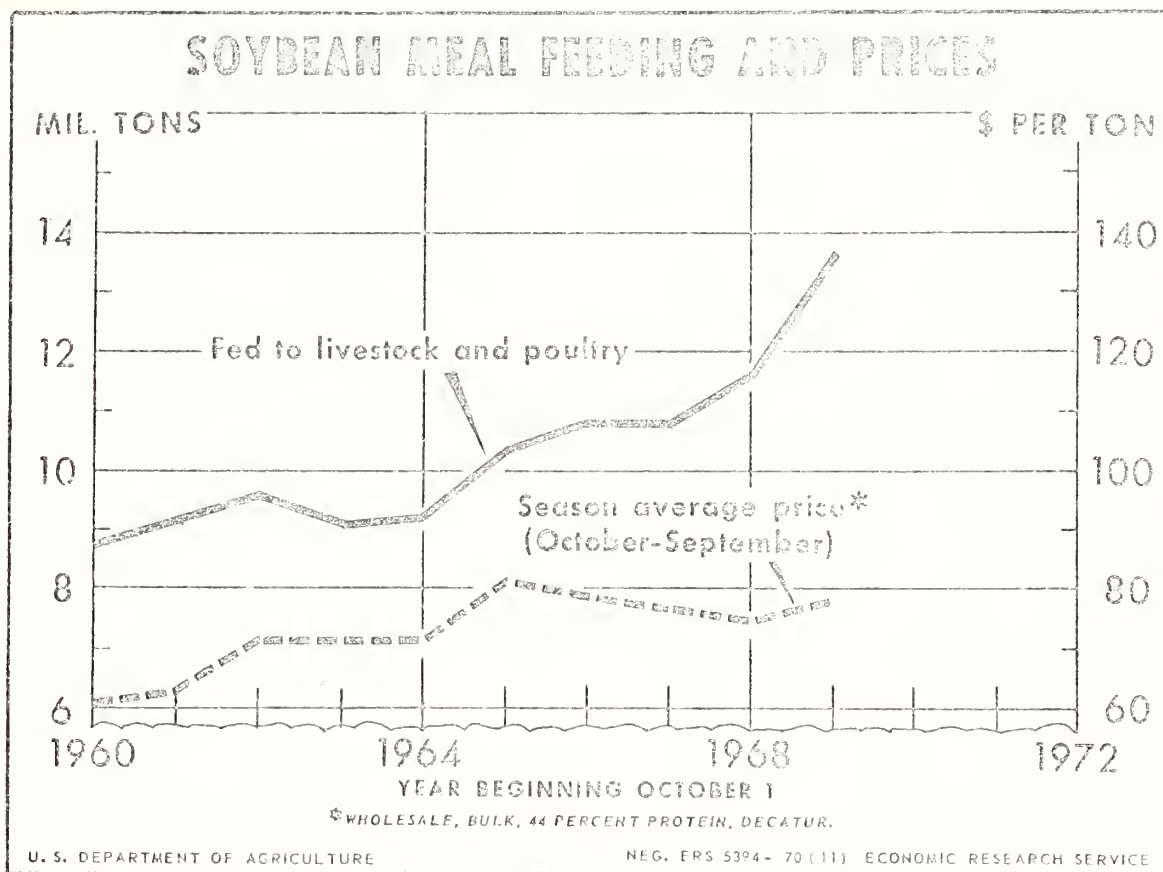
U.S. DEPARTMENT OF AGRICULTURE Δ Oct.-Jan. 8V. NEG. ERS 7086-70 (11) ECONOMIC RESEARCH SERVICE

Favorable livestock-feed price ratios of the past 2 years have contributed to the increase in the feeding rate per animal unit. Responding to high livestock prices relative to feed costs farmers fed hogs and cattle liberally in 1969/70, raising the feeding rate per animal unit to 1.54 tons, the highest of record.

The short feed grain crop this year has caused higher feed prices--which, together with lower hog and poultry prices--resulted in much lower livestock-feed price ratios. In October-January, the ratio of livestock prices to feed prices dropped to 100% of the 1956-65 average, much below the 118 to 120% for 1968/69 and 1969/70. The U.S. hog corn price ratio in January was only 10.7, in contrast to the very favorable 23.5 of a year ago. Broiler, egg, and turkey-feed price ratios were off substantially from a year ago. Prices of beef cattle also are off considerably in relation to feed costs. The milk-feed price ratio has been the least affected by higher feed costs.

The number of grain-consuming animal units to feed in 1970/71 is now estimated at 120 million units, about $2\frac{1}{2}$ million more than in 1969/70. But the concentrate feeding rate per animal unit probably will slide below the record 1.54 tons of 1969/70.





High-protein feed usage, which has been trending generally upward for a number of years, rose sharply in 1969/70. A continuation of favorable livestock-feed price ratios and an increase in high-protein consuming livestock were largely responsible for increasing demand for high protein feeds in recent years. A further gain in high protein feed consumption--probably 3 or 4%--is expected for 1970/71. Soybean meal, which made up most of the increase in protein feeding in 1969/70, will again be the major source of the increase in 1970/71. Strong demand for soybean meal during the past year kept crushing plants operating near capacity, even with soybean meal prices averaging nearly \$80 per ton at Decatur, up 6% from 1969/70. Fishmeal supplies reached the lowest level in 10 years in 1969/70, some recovery is expected in 1970/71. Supplies of animal protein feeds also are expected to be a little larger than last year, but a smaller supply of cottonseed meal is in prospect.

With continued strong demand, soybean meal prices averaged close to last year's levels this fall and winter. Crushers are again operating near capacity. Prices during the feeding year are expected to be more stable than in 1969/70 when monthly prices at Decatur ranged from \$70 to \$88 per ton. Soybean meal prices are low this year in relation to corn and many other feeds, encouraging liberal use.



RURAL MANPOWER: PROGRAM NEEDS, PAYOFFS, DELIVERY AND DIRECTION

by Joseph D. Coffey*

The term rural manpower use to bring to mind the image of the yeoman farmer. Manpower was thought of as the physical strength of the individual to do work. Rural was synonymous with farm as the vast majority of rural people were farmers. In its modern usage, the term manpower refers to not only physical strength of the work force but to the other dimensions of our human resources such as health and skill. Rural is no longer synonymous with farm. Today, only one out of 20 in the nation live on a farm. Even in rural areas only 1 out of 6 live on a farm.

The increasing concern which is now focused on rural manpower has stemmed from the awareness of the rising importance of education and training in the modern economy. Today, brains not brawn receive the rewards. The growing Federal commitment to manpower development has focused on two basic objectives: (1) to promote the full development of our human resources by assisting individuals, particularly the poor and disadvantaged, in the fulfillment of their employment potential; (2) to contribute to the national economic stability and growth. The overall goal is to provide the individual the opportunity to acquire and develop to the fullest potential, skills and knowledge, and to provide an opportunity to utilize these skills and knowledge to the fullest extent. Thus, in our discussion of rural manpower, we are focusing on both upgrading the knowledge and skills of the rural people and utilizing these skills in the most productive way.

My comments will be addressed to four principle topics. First, I will explore the nature and magnitude of the rural manpower problem. Second, I will discuss the potential payoff to improving rural manpower. Third, I will briefly review the extent to which present Federal manpower programs are being or not being delivered to the rural people. Fourth, I will suggest some of the steps that might be taken to enhance the contribution of manpower programs to rural development.

Program Needs

Rural/Urban Comparisons

As a background against which to assess the needs in rural areas for manpower programs, let us first review briefly the socio-economic conditions and trends in rural areas relative to those in urban areas. The general pattern of the rural/urban comparisons are of no doubt familiar to this audience. Generally speaking, the citizens of rural areas have lower incomes, lower education attainment and a higher incidence of poverty than those living in metropolitan areas. The incidence of poverty in rural areas is almost double that in

*Assistant to the Deputy Under Secretary for Rural Development. Talk presented to the 1971 National Agricultural Outlook Conference, Washington, D.C.



Table 1: Comparison of trends in social and economic conditions in metropolitan and nonmetropolitan areas, 1960-1969

Item	Metropolitan		Nonmetropolitan	
	1969	Change 1960-69	1969	Change 1960-69
	<u>Million</u>	<u>Percent</u>	<u>Million</u>	<u>Percent</u>
Population	129.6	15	70.6	6
White	112.2	13	63.4	7
Negro	15.8	33	6.6	1
	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>
Median family income*	9,411	25	7,342	39
White	9,776	25	7,624	36
Negro	6,228	38	3,686	83
	<u>Percent</u>		<u>Percent</u>	
Education				
Persons 25 to 29 who graduated from high school	78		69	
From college	18		12	
	<u>Million</u>	<u>Million</u>	<u>Million</u>	<u>Million</u>
Employment				
Total	48.2	8.3	25.9	4.2
White male	28.0	2.9	15.3	1.3
Negro male	3.1	0.7	1.1	0
White female	16.4	4.0	8.7	2.8
Negro female	0.7	0.7	0.8	0.1
	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>	<u>Percent</u>
Earnings*				
Male year-round workers	7,998	21	6,246	23
Female year-round workers	4,279	10	3,481	19
	<u>Million</u>	<u>Million</u>	<u>Million</u>	<u>Million</u>
Poverty*				
Million persons below poverty (incidence)	12.9(10%)	-4.1	12.5(18%)	-9.2
White	8.5(8%)	-3.3	8.9(14%)	-7.6
Negro	4.1(27%)	-0.9	3.5(55%)	-1.4
Negro in South	1.9(32%)	-0.8	3.4(59%)	-1.3

Continued-



Table 1: Comparison of trends in social and economic conditions in metropolitan and nonmetropolitan areas, 1960-1969 - Continued

Item	Metropolitan		Nonmetropolitan	
	1969	Change 1960-69	1969	Change 1960-69
	<u>Billion dollars</u>	<u>Percent</u>	<u>Billion dollars</u>	<u>Percent</u>
Income deficit	5.2	-21.2	4.6	-44.0
White	3.7	-24.5	3.3	-46.8
Negro	1.4	-12.5	1.2	-36.8

*Data for 1959 and 1968 instead of 1960 and 1969.

Source: U.S. Bureau of Census, Current Population Reports, Series P-23, No. 33.

metropolitan areas. The majority of rural Negroes in the South are in poverty. Median family income in rural areas lags more than \$2,000 behind that of urban areas. In metropolitan areas, 78 percent of the males of age 25 to 29 have graduated from high school and 18 percent have graduated from college; whereas in rural areas only 69 percent have graduated from high school and 12 percent have graduated from college.

Except for the teenagers, unemployment rates tend to be somewhat higher in rural than in metropolitan areas. A more meaningful measure of the utilization of rural manpower than unemployment is underemployment -- that is the extent to which persons are earning below their full potential. Although no recent estimates of underemployment are available, previous studies have indicated that one-fourth or more of the rural labor force may be earning below its potential.

One indicator of underemployment is the extent to which employed persons have incomes below the poverty level. In metropolitan areas, about 44 percent of adult males in poverty were employed in 1968. In rural areas, 1,664,000 or 52 percent of male adults and 1,035,000 or 23 percent of female adults in poverty were employed. These data suggest that there are large numbers of those employed in rural areas who are involved in low wage, low skilled occupations, and do not earn adequate incomes to escape poverty. The image held by some of the rural poor as one who sits on his front porch in a rocker, whittling and spitting tobacco, and squirrel hunting in his spare time is certainly a mistaken one.

Encouraging Trends

Despite the overall lag in income of rural areas behind those of urban areas, some encouraging trends took place during the 1960's in rural areas. Median family income of rural whites increased by 36 percent during the 1960's compared to a 25 percent increase for metropolitan whites. For rural Negroes, income gains during the 1960's were much more dramatic. For the period 1960-69, the median family income of rural Negroes increased by 83 percent. This compares to a 38 percent increase in metropolitan areas. Thus, during the 1960-69 period, rural Negro median family income increased more than twice as fast as that of the rural whites, urban whites or urban Negroes. It must be emphasized, however, that rural Negro incomes still remain pitifully low.

Encouraging trends also took place during the 1960's in terms of reduction in the persons below poverty; 9.2 million rural residents crossed the official poverty threshold. The income deficit of those below poverty decreased by some 44 percent. Both of these indicators are more than double the rate of progress in metropolitan areas.

It is not clear to what extent these favorable trends of increased income and reduced poverty in rural areas was affected by rural to urban migration. We do not know, for example, the extent to which rural poor simply out-migrated and became urban poor. On the basis of preliminary statistics, it appears that out-migration from rural areas continued on a fairly extensive basis. Approximately one half the counties, most of which were in the rural areas, experienced population losses during the 1960's. Historically, the outflow from rural to

urban areas has been composed principally of the younger, more able-bodied persons, and not the low income, less skilled persons. Thus, although some of the reduction in poverty in the rural areas is undoubtedly due to out-migration the bulk of it is probably due to improvement in the capabilities and skills and the expansion of meaningful jobs in rural America.

Target Group

A rough estimate of the need for manpower programs in rural areas is the approximately 3 million adults in poverty who are employed or unemployed. The universe actually may be considerably larger than this 3 million, since many persons earn slightly more than the poverty standard and are vulnerable to skill obsolescence, and unemployment or underemployment. However, many of the remaining poor adults are not good candidates for manpower services because of ill health, old age, and conflicting family responsibilities. For these, income maintenance programs are more appropriate.

In addition to the target group of the 3 million adults already in poverty, it is equally important to equip rural youth with the basic education and skills which will prevent, or at least lessen, the likelihood of them becoming poor adults. They, too, as I will stress later, are a top priority target group.

The Payoff - Past Gap and Future Gain

Income Forgone Gap

What might be the benefit derived from upgrading the quality and skills of rural people and utilizing these skills more fully? In order to answer this question, I have made two sets of calculations. The first set of calculations is an attempt to measure what rural areas as compared to urban areas now forgo due to (1) the lower educational level of the labor force and (2) the lower median incomes received by those with same educational level.

It is well known that income is highly correlated with educational attainment. Thus, for example, rural males 25 to 54 years of age with 8 years or less of education have median incomes of \$4,000, whereas those with high school degrees have median incomes of \$7,300. This difference in income largely reflects the higher productivity of those with more advanced training. If rural males of 25 to 54 years of age in 1969 would have had the same level of educational attainment as those in metropolitan areas, their income would have been higher by \$6 billion - an increase of 8 percent. We shall call this \$6 billion the "education gap."

Rural areas not only have lower educational attainment levels, but for a given level of educational attainment, median income is only about 85 percent of that in metropolitan areas. This difference could be due to a number of factors: (1) The quality of rural schooling may be lower and therefore, a given level of educational attainment measured in years of school completed may represent a lower level of skills; (2) Due to differences in the cost of living, incomes

Table 2: Estimated income and educational gap, for non-SMSA males,
25 to 54 years of age, 1969*

Educational attainment	Present non-SMSA			If equivalent to SMSA		
	Number	Median income	Total income	Number	Median income	Total income
	Thousands	Dollars	Million Dollars (Col. 1 x Col. 2)	Thousands	Dollars	Million Dollars (Col. 4 x Col. 5)
Elementary:	(1)	(2)	(3)	(4)	(5)	(6)
8 years or less	3,027	4,083	12,359	1,665	6,094	10,147
High school:						
1 to 3 years	1,792	6,248	11,196	1,887	7,303	13,781
4 years	3,925	7,297	28,641	3,996	8,350	33,367
College:						
1 year or more	2,356	8,804	20,742	3,552	10,363	36,809
Total	11,100	---	72,938	11,100	---	94,104
Gap**						
	Number	Total income	Due to education	Due to higher income	Combination	
	Thousands	Million dollars				
		(Col. 6 - Col. 3)				
Elementary:	(7)	(8)	(9)	(10)	(11)	
8 years or less	-1,362	-2,212	-5,561	6,048	-2,751	
High school:						
1 to 3 years	95	2,585	594	1,891	100	
4 years	71	4,726	518	4,133	75	
College:						
1 year or more	1,196	16,067	10,527	3,675	1,865	
Total	0	21,166	6,078	15,747	-711	

* Data based upon U.S. Bureau of the Census op cit pp. 41 and 43.

** Let: N_i = Number of non-SMSA males at educational level i .

ΔN_i = Additional number of non-SMSA males at educational level i if on parity with SMSA's.

Y_i = Median income of non-SMSA males at educational level i .

ΔY_i = Difference between median income level between SMSA and non-SMSA males at educational level i .

Then - Col. (9) = Due to education = $Y_i \Delta N_i$

Col. (10) = Due to higher income = $\Delta Y_i N_i$

Col. (11) = Combination = $\Delta Y_i \Delta N_i$

Col. (8) = Total = Col. (9) + Col. (10) + Col. (11)

measured in terms of purchasing power may be the same; and (3) Rural manpower may not be utilized as productively as it is in metropolitan areas. My opinion is that the differences in income levels is not all attributable to cost of living differentials and is largely due to quality of schooling and manpower utilization differentials. If we measure the potential income forgone in rural areas as the difference in income obtained by those with comparable levels of educational attainment, then the income of rural males, 25 to 54 years of age, in 1969, would have been \$15.7 billion more than it was - an increase of 21.5 percent. We shall call this \$15.7 billion the "earning gap."

In global terms these calculations suggest that if rural males would have received the same level and quality of education and the same incomes for each of these levels of educational attainment as their metropolitan counterparts, rural income would have been \$21 billion more than the \$73 billion they earned. If we expand this \$21 billion income gap for males 25-54 to account for other males and females in the rural labor force, the estimated total income forgone by rural areas attributable to lack of educational attainment and lack of comparability of salaries in 1969 amounts to \$50 billion.

Future Gain

The previous calculations were based upon a look backward into the past and assumed no changes in the rural population. Presumably if rural educational and income levels were increased out-migration, expansion of industry, and the overall rural development pattern would be different. Thus, what is even more interesting than to see what has been forgone, is to speculate what gain might result if we take significant strides to revitalize rural areas and the future developmental trends become more favorable.

The second set of calculations is based upon a comparison of projections to the year 2000. One projection is based on the assumption that previous historical trends in rural areas of lower educational levels, lower worker productivity slower expansion employment, etc., would continue to the year 2000. The other projection is based on the assumption that there would be a more concerted effort than has been made in the past to revitalize rural America. Two broad changes are considered in the rural revitalization projection. First, it is assumed that jobs are created via an accelerated pace of industrialization in rural areas and that this expansion results in expanding the demand for rural workers as fast as the demand expands for metropolitan workers. Second, the projection assumes that the rate of productivity growth per worker will be more rapid than it has been in the past. This rise in productivity from the lower level that now exists in rural areas would result from upgrading of the labor force through improved education, manpower training, and also, upgrading jobs.

The projection of a rural revitalization reveals that by the year 2000, the out-migration from rural areas would be ended and the per capita income differences between rural and metropolitan areas would be eliminated. Rural revitalization would result in the following additions above and beyond those that otherwise are projected to occur to the year 2000: (1) A reversal in the population loss

Table 3: Projections of alternatives for economic development in metro and nonmetro areas, year 2000

Item	Projections to 2000										Result of rural revitalization	
	1970	Present trends		Rural revitalization		Increase from 1970		Present trends		Rural revitalization		
		:	:	:	:	:	:	:	:	:		:
-----Millions-----												
Population	200.6	270.3	270.3	270.3	69.7	34.7	69.7	34.7	69.7	34.7	0	
Metro	137.7	197.5	197.5	193.4	59.8	43.4	55.7	40.4	55.7	40.4	-4.1	
Nonmetro	62.8	72.8	72.8	76.9	10.0	15.9	14.1	22.5	14.1	22.5	+4.1	
Employment	77.0	120.3	120.3	123.0	43.3	56.2	46.0	59.7	46.0	59.7	+2.7	
Metro	54.7	91.1	91.1	90.5	36.4	66.5	35.8	65.4	35.8	65.4	-0.6	
Nonmetro	22.3	29.2	29.2	32.5	6.9	30.9	10.2	45.7	10.2	45.7	+3.3	
-----Billion dollars-----												
Personal income	690.6	2,244.1	2,244.1	2,353.1	1,553.5	224.9	1,662.5	240.7	1,662.5	240.7	+109.0	
Metro	524.4	1,693.4	1,693.4	1,683.3	1,169.0	222.9	1,158.9	221.0	1,158.9	221.0	-10.1	
Nonmetro	166.2	550.7	550.7	669.8	384.5	231.3	503.6	303.0	503.6	303.0	+119.1	
-----Dollars-----												
Income per capita	3,808	8,574	8,574	8,705	4,766	125.2	4,897	128.6	4,897	128.6	+131	
Metro	2,645	7,565	7,565	8,705	4,920	186.0	6,060	229.1	6,060	229.1	+1,140	
Nonmetro												
-----Millions-----												
Migration to metro	0.4	.2	.2	0	-.2	-50	-.4	--	-.4	--	-0.2	

equivalent to 4.1 million people and 3.3 million jobs; (2) An increase in income by \$119 billion; and (3) An increase of per capita income by \$1,140.

It should be emphasized that these projections do not imply robbing the metropolitan areas to give to the rural areas or halting urban growth. Under the rural revitalization alternative, income per capita in the metropolitan areas would be \$131 higher per capita than they would be without the rural revitalization effort.

Both sets of these calculations clearly suggest efforts to upgrade rural manpower could have substantial payoff. Looking backward it would appear that the existing rural people are earning about \$50 billion less per year than they would be if they had the same level and quality of educational attainment and earned comparable incomes for a given level of educational attainment as that of their metropolitan counterparts. Peering into the future it would appear that a determined and sustained effort to upgrade and revitalize rural areas might result in 3.3 million more rural jobs and \$119 billion per year more income than otherwise. Although not all these payoffs would be attributable solely to upgrading rural manpower, there does appear to be scope for substantial benefits.

Program Delivery to Rural Areas

I have argued that there is a need for manpower programs in rural areas and that there is a sizeable payoff potential that might result from upgrading the quality and utilization of rural manpower. Now I will examine the extent to which the Federal programs are delivered to rural areas to meet these needs and generate these payoffs.

I have examined the expenditures in rural areas for the following five major Federal budget program categories for fiscal year 1969: health facilities construction; health services and care; elementary and secondary education; higher and science education; and, vocational education and manpower training. Each of these program areas makes or could potentially make a significant contribution to manpower quality. These five program areas accounted for a combined expenditure of \$2,380,000,000 in rural areas in 1969. If the expenditures on health facilities construction were allocated on a basis proportional to population, rural areas should have received \$14 million more. The gap for health services and care amounts to \$284 million. Expenditures on higher and science education were \$59 million below the level which would have made them proportional to population. \$129 million additional vocational education and manpower training funds would need to be spent in order to make them proportional to population. Elementary and secondary education was the only major human resource program category for which data were available that had a higher proportion of expenditures than of the population.

The net result of these five human resource program categories is that expenditures in rural areas would have to be increased from \$2,380,000,000 to \$2,800,000,000 or by \$420 million in order to be proportional to population.

Table 4: Federal Human Resource Program expenditures in nonmetropolitan areas, FY 1969

Program	Program expenditures in nonmetropolitan areas		
	Actual	If proportional to population	Gap
-----Million dollars-----			
Health facilities construction	155	169	14
Health services and care	808	1,092	284
Elementary and secondary education	844	787	-57
Higher and science education	377	436	59
Vocational education and manpower training	196	316	120
Total	2,380	2,800	420

Source: Locational Analysis of Federal Expenditures in Fiscal Year 1969, Evaluation Division, Office of Management and Budget, September 1, 1970.

This is predicated on the assumption that rural areas should receive a share proportional to their population. As we have mentioned earlier, the incidence of poverty, underemployment and other indicators suggest that the need for these programs in rural areas may even be greater than that measured by the proportion of population. Furthermore, the delivery of a unit of these program services in rural areas may be more expensive and therefore a dollar's worth of expenditures may accomplish less in rural areas than it will in metropolitan areas. On the other hand, some rural residents may commute to the metropolitan centers to receive some of these services and therefore the share of expenditures in rural areas may not necessarily fully reflect participation by rural residents. This would be true probably for the higher and science education category and to a lesser extent for the health categories. But overall, it must be concluded - at least on a tentative basis - that four major Federal human resource program categories were not adequately reaching rural America in FY 1969.

In the Federal Budget, manpower programs are defined as those programs which generally (1) operate outside the normal education processes, (2) give services for periods less than a year, (3) provide skilled training and job opportunities for non-professional jobs and (4) target on the disadvantaged sector of the population. Although information is incomplete, I have obtained estimates of the share of the program outlays going to rural areas for eleven key manpower programs. The proportion of manpower program expenditures spent in rural areas was less than proportion of population. Three of the ten Department of Labor manpower programs for which I have data have the share of program expenditures in rural areas greater than the share of rural population. These programs are the Job Corps, Operation Mainstream, and Neighborhood Youth Corps. The seven Labor Department programs for which the rural expenditure share is less than rural population share are: On-Job-Training, MDTA-Institutional Training, Placement Services, Concentrated Employment Program, JOBS, Work Incentive Program, and New Careers Program.

Although the data at hand are not as detailed or as complete as I would like, they do suggest that rural areas are receiving less than their proportionate share of Federal manpower program dollars. The fact that less than the proportionate share of dollars goes into rural areas, coupled with the likelihood that the cost of operation of many of these programs may be higher in rural areas and the fact that the incidence of poverty is higher in rural areas, all suggest that there is considerable scope and opportunity for the more effective delivery and outreach of manpower programs to rural areas.

Manpower Programs in Rural Development

What is or should be the role of manpower programs in the development of rural America? My previous comments indicate: (1) there is a definite and urgent need in rural areas to upgrade the skills and income of rural people, (2) such an effort is likely to result in a substantial payoff to the society; and, (3) at the present, all manpower programs are not adequately reaching rural residents. With these points in mind, let me briefly suggest a few areas in which it would appear that more attention and focus is needed in the future. These



Table 5: Major Federal manpower programs and share in
non-SMSA's FY 1970

Agency and program	Percent of total in non-SMSA	Total
		<u>Million dollars</u>
<u>Department of Labor</u>		
On-job-training	14.4	25.4*
MDTA-Institutional Training	16.7	92.9*
Placement Services Administration	18.9	155.6*
Concentrated Employment Program	9.3	50.6*
Job Opportunities in Private Business Sector	8.5	65.0*
Neighborhood Youth Corps	36.8	99.7*
Work Incentive Program	1.1	16.4*
New Careers	8.3	5.3*
Operation Mainstream	72.7	26.0*
Job Corps	40.8	41.7*
Sub-total	22.8	578.7*
<u>Department of Health, Education and Welfare</u>		
Manpower Development and Training	9.2	154.7

*First half FY 1970 only.

suggestions are not meant to be all-encompassing, but rather illustrative of some steps that might be taken.

There are two broad principles upon which a sound rural manpower policy should be built. First, rural preschool, elementary and secondary education systems should be upgraded and improved. A policy of educational excellence for the young is the cornerstone upon which a viable rural America must be built. Second, rural citizens should be provided the full opportunity to participate in all human resource and manpower programs. The era of excluding rural people from participation with equal rights and opportunities as their urban counterparts should be drawn to a close.

Now let us turn to some more specific suggestions for rural manpower programs. Efforts to improve the labor market information system in rural areas should be accelerated. Workers and potential entrants to the labor force need reliable and current information about job opportunities in order to effectively participate in the labor force. Similarly, employers who need workers must have current and reliable information as to the availability and skills of potential employees in rural areas. Too many manpower resources in rural America have been poorly utilized and too many have made poor locational and career choices due to inadequate information. Too many rural areas are by-passed early in the site selection process of the industrial firm due to inadequate labor force information.

Suitable job-oriented training programs and re-training programs should be expanded in rural areas. Particular attention should be given in these programs to those in poverty and disadvantaged status. The training should be geared to real and good paying not hypothetical and dead-end job opportunities.

Assistance should be made available to facilitate the manpower adjustment process of the disadvantaged. Without some minimal assistance, many of the rural poor will not be able to take advantage of the job and job training opportunities that exist. In certain situations, relocation assistance may be needed as it will not always be possible to have a perfect match between the distribution of job opportunities and those in search of a job. My plea, however, is that this relocation assistance be an integral part of an overall rural development strategy and not a policy of following whatever trends happen to occur.

Finally, let me raise a question about manpower policy in relation to the proposed Family Assistance Program. As you may know, the Family Assistance Program contains provisions to include the working poor and to encourage manpower training. Some analyses have been conducted concerning its potential impact on rural areas, but I see a need for further examinations as to how rural people can best take advantage of the proposed manpower training opportunities.

Conclusion

Let me conclude with five observations: First, the development of rural areas is dependent upon having a highly skilled labor force and utilizing these skills

to their fullest potential. Second, rural areas now lag behind urban areas in almost all the indicators of manpower program needs. Third, there exists a \$100 billion payoff potential to sound investments in rural manpower. Fourth, at the present time, health, education and manpower programs are not adequately reaching rural residents. Fifth, basic to a sound rural manpower policy, is a policy of educational excellence for rural youth and extending the full opportunity for participation by rural residents in all Federal, State and local human resource and manpower programs.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

THE WHO, WHAT, AND WHERE OF MEDICAL CARE SPENDING

Talk by Barbara S. Cooper
Social Security Administration
Department of Health, Education, and Welfare
at the 1971 National Agricultural Outlook Conference
Washington, D. C., 8:45 A.M., Wednesday, February 24, 1971

The past few years have witnessed sharp increases in the amounts spent for medical care. The continuous spiralling of health expenditures has evoked great concern. Are we receiving more and better services for our large outlays? Are rising prices for medical care eating up the growing expenditures? Can efficiency in the health industry be improved? The situation has reached crisis proportions and the answers to these and other questions are being sought in an effort to discover means of supplying quality medical care at a price the Nation can afford.

Estimates of medical care spending have been made for a number of years by the Social Security Administration and are published annually in their Bulletin. In order to provide a better understanding of the current crisis in medical care this paper presents the background facts relating to medical care spending--who pays, what and how much is bought, for whom it is spent, and how and why it has grown.

Total Expenditures

In fiscal year 1970 this Nation spent \$67.2 billion for health and medical care--an increase of \$7 billion in the last year alone. This growth in medical care spending has been faster than the growth of the economy in general. In fiscal 1950 medical care expenditures amounted to \$12.1 billion and represented 4.6 percent of the Gross National Product. In fiscal 1960 its share of GNP was 5.3 percent; 10 years later it had risen to 7.0 percent.

For each American, these large expenditures meant an average 1970 health bill of \$324--more than double the bill of just 10 years before and 4 times the average 1950 bill. The following table presents the trend in aggregate and per capita health expenditures and the percent of GNP:

Fiscal year	Health expenditures		Percent of GNP
	Total (in billions)	Per capita	
1929.....	\$3.6	\$29	3.6
1935.....	2.8	22	4.1
1940.....	3.9	29	4.1
1945.....	7.9	56	3.7
1950.....	12.0	78	4.6
1955.....	17.4	104	4.6
1960.....	25.9	142	5.2
1965.....	39.0	198	5.9
1970.....	67.2	324	7.0

The substantial rise in national health expenditures is the result of many factors. One is simply the growth in population; other factors are the rising costs or prices per unit of service, the increase in the average per capita utilization of health services and supplies, and the rising level and scope of services through new techniques, drugs, and treatment procedures.

The portion of the increase due to each of the factors varies considerably. The calculation of these proportions is most meaningful in terms of personal health care expenditures which represent all outlays for health and medical services for the direct benefit of the individual, such as for hospital care, physicians' services, etc. Nonpersonal health care expenditures are those outlays which are spent for the community, such as for medical-facilities construction, research, disease control and detection programs, etc.

Examining the 1950-70 period, it was found that about 46 percent of the \$47.6 billion increase in personal health care expenditures could be attributed to the rise in prices, another 17 percent was the result of population growth, and the remaining 37 percent was due to greater utilization of services and the introduction of new medical techniques. The relative contribution of price, population, and all other factors (per capita use and improvement in quality) in the increase for fiscal years 1950-70 is compared below:

<u>Factor</u>	<u>Aggregate increase (in billions)</u>	<u>Percentage distribution</u>
Total.....	\$47.6	100.0
Price.....	21.9	46.0
Population.....	8.2	17.2
All other.....	17.5	36.8

Medical Care Prices

With rising prices responsible for such a large portion of the increase in medical care expenditures, it is apparent that the sizeable growth in medical care prices is a matter of concern. A dollar for health care spent today does not go nearly as far in paying for a day of care or a unit of service as it would have several years ago.

Since World War II the consumer price index (CPI) and its medical care component have been continuously rising, with the latter rapidly outpacing the former. In recent years, however, the gap between the relative increases of these two price indexes has widened considerably. From 1960 to 1966 medical care prices jumped nearly twice as fast as prices for all consumer items. The gap continued in the three-year period 1966-69, when medical care prices increased at the annual rate of 6.4 percent while all consumer items grew 3.8 percent annually.

In the last year, however, a different picture emerged. The recent inflationary pressures in the general economy have changed the long-term relationship between the prices for all consumer items and medical care prices. Fiscal year 1970 witnessed little difference in the growth rates for all prices--6.0 percent--compared with medical care prices--6.4 percent. The extent to which the general inflation has affected the recent rise in medical prices cannot be isolated.

Particular attention has been focused on the relationship between the accelerated increases in medical care prices in 1966 and the introduction of Medicare and Medicaid, the two new public programs financing a large part of the medical care for the aged and for the poor. The major areas contributing to the rise in prices are the costs of hospital care and physician services.

The major ingredient in hospital costs is payroll which accounts for three-fifths of total hospital expenses. Wages of hospital employees had lagged significantly behind those in other sectors of the economy for many years. In February 1967 the minimum wage law was extended to hospital employees. At about the same time there were increased demands for wage increases by professional nurse organizations and unions. The ready availability of operating funds under Medicare and Medicaid allowed hospitals to accede to wage demands, to make renovations, purchase equipment and supplies, and expand patient services. Over the period 1961-65 the net income of nongovernmental nonprofit hospitals averaged \$112 million, or 1.9 percent of total revenues. From 1966 on, hospital costs rose rapidly but revenues rose more rapidly. Net income increased to an average of \$359 million for 1967-69, 3.4 percent of total revenue.

A part of the rise in physicians' fees occurring early in 1966 was perhaps in anticipation of the Medicare program. A more basic and continuing factor over the period is the increase in demand for physician services without a corresponding increase in the supply of physicians. The increasing awareness of the value of physician services and the lowering of financial barriers to such services through widespread insurance coverage have served to produce a greater demand for services. Medicare and Medicaid, for example, have contributed significantly to the growth of the demand for services by lowering the financial barriers for many persons.

Radidly accelerating medical care prices do not affect any single segment of the population alone; rather, they affect every American who at some time may have to pay for medical services. While it is true that those Americans of moderate to low incomes, as well as those who require medical attention because of advanced age or severe disabilities, are more drastically affected by excessive increases in medical prices, such increases are not uniquely a problem of the poor, or the aged, or the chronically ill. Public attention has been focused on the marked and tangible, adverse impact of increased medical care prices upon the costs of the Medicare program and its beneficiaries, but the effect is in fact universal. The same effects are being experienced by other health insurers who are faced with the decision to either withhold additional protection or increase premiums to offset the increased costs. And, more dramatically, that segment of the population which is unable to purchase adequate health insurance must in many instances forego needed medical attention because of its prohibitive cost.

Age Distribution

It is evident that medical care outlays now occupy an important position in the Nation's output. As such, it is pertinent to understand for whom these expenditures are made.

The latest year for which expenditures are available by age is fiscal 1969. Of the \$52.6 billion spent for personal health care in fiscal 1969, one-fourth (\$13.5 billion) went for the medical care of the less than one-tenth of the population who are aged. Only 16 percent of the outlays were spent on the youngest age group (under 19) which represented 37 percent of the population. The remaining 58 percent was spent on the 19-64 age group representing 54 percent of the population.

Age	FY 1969 Expenditures (in millions)	Population (in thousands)	Percentage distribution	
			Expenditures	Population
Total.....	\$52,564	205,298	100.0	100.0
Under 19.....	8,415	75,253	16.0	36.7
19-64.....	30,659	110,557	58.3	53.9
65 and over.....	13,490	19,488	25.7	9.5

The relatively large outlays spent for the aged reflects the fact that the aged have more and costlier illnesses than the younger population. The average health expenditure in fiscal year 1969 for each aged person was six times that for a youth, and two and one-half times that for a person in the 19-64 age group:



<u>Age</u>	<u>FY 1969 per capita expenditures</u>
Total.....	\$256
Under 19 years.....	112
19-64.....	277
65 and over.....	692

Source of Funds

The average medical care bill of an individual today is financed both publicly and privately. By far the larger share of the medical care dollar has always come from private funds, but, as Medicare and Medicaid were added in fiscal 1967, a shift to more public financing occurred. In fiscal 1966 (before Medicare and Medicaid) the Government spent 26 cents of every medical care dollar. By fiscal 1970 the Government's portion had reached 37 cents with much of this increase coming from Federal funds.

<u>Source of funds</u>	<u>Amount (in millions)</u>		<u>Percentage distribution</u>	
	<u>FY 1966</u>	<u>FY 1970</u>	<u>FY 1966</u>	<u>FY 1970</u>
Total.....	\$42,286	\$67,240	100.0	100.0
Private.....	31,464	42,258	74.4	62.8
Public.....	10,822	24,982	25.6	37.2
Federal.....	5,390	16,667	12.7	24.8
State and local.....	5,432	8,315	12.8	12.4

The public and private share of the medical care bill varies for each of the age groups. In fiscal 1969, almost three-quarters of an aged person's bill was funded by the Government. Medicare alone financed 47 percent and Medicaid contributed 16 percent. In fiscal 1966, the year before Medicare, only three-tenths of an aged person's medical bill was paid for by public funds. (All Medicare payments are classified as public outlays, including premium payments made under the supplementary medical insurance program.)

For the average person in the 19-64 age group, public funds contributed one-fifth of his 1969 health bill; and for a youth, the public share was just one-fourth.

The private portion of a person's health bill does not all come directly out-of-pocket. Private health insurance, philanthropy, and industry, through

industrial in-plant services, help reduce these direct payments. Here, too, there is substantial variation by age.

When all ages are summarized together, the average personal health care bill in fiscal 1969 was \$256 per person. Private health insurance paid \$57 or 22 percent of the bill, philanthropy and industry contributed another \$4 or 2 percent, and when the Government's \$91 or 36 percent share was added, the amount remaining for the individual to pay directly was \$104 or 41 percent.

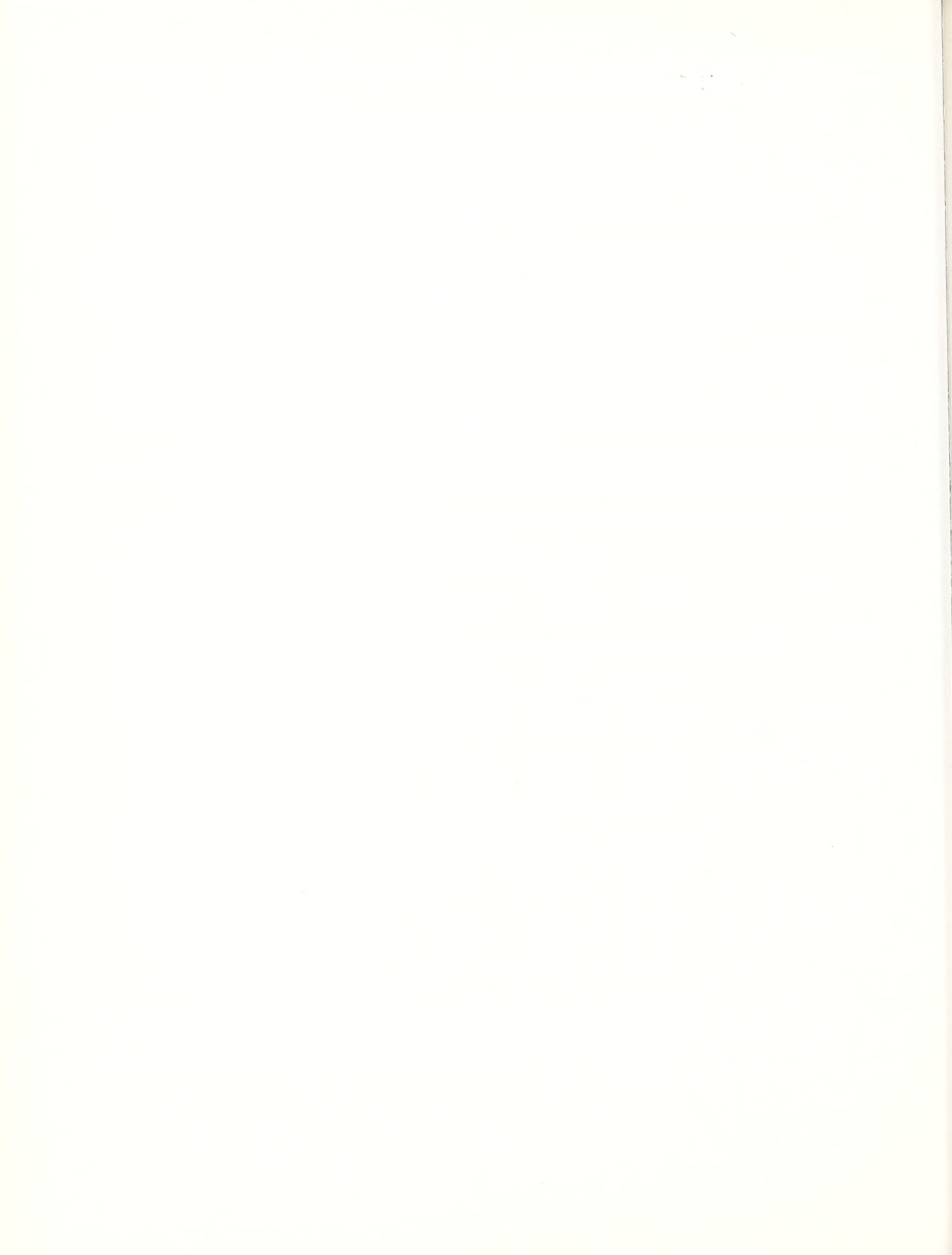
For a person under age 65 private health insurance played a larger role, financing \$60 (29 percent) of the average bill of \$210. After deductions for Government, philanthropic and industrial spending, the person under 65 years of age directly spent an average of \$98.

With the substantial contributions of Medicare and Medicaid to the aged person's health bill, his out-of-pocket expenses were only 24 percent or \$163 of his \$692 bill. Private health insurance paid \$26 (4 percent) and philanthropy and industry contributed another \$4 (1 percent) of the bill.

The following tabulation shows, by age, the per capita amount and health care expenditures met by third parties in fiscal 1969:

Age	Total	Direct pay- ments	Third-party payments			
			Total	Private health insur- ance	Govern- ment	Philan- thropy and other
Per capita						
Total.....	\$256.04	\$103.82	\$152.21	\$57.12	\$91.23	\$3.87
Under age 65.....	210.30	97.58	112.72	60.40	48.45	3.86
Aged 65 and over.	692.22	163.38	528.84	25.86	499.08	3.90
Percentage distribution						
Total.....	100.0	40.6	59.4	22.3	35.6	1.5
Under age 65.....	100.0	46.4	53.6	28.7	23.0	1.8
Aged 65 and over.	100.0	23.6	76.4	3.7	72.1	.6

It is evident that Medicare and Medicaid are the largest supporters of the aged's public health bill, contributing 65 percent and 22 percent, respectively. It is interesting to note, however, which public programs help fund the health bills of the other age groups.



For the person under age 19, Medicaid was his largest public contributor supporting 38 percent of the public effort on his behalf. The Defense Department spending in its Dependents Medical Care Program was responsible for another 28 percent and the maternal and child health care programs funded 14 percent.

For the person in the 19-64 age group, the largest public contributor was the general hospital and medical program (classified as "all other") which is primarily the State and local mental hospitals. The second largest contributors were the Veterans Administration and Defense Department which together paid one-third of the public outlays for this age group.

Public program	All ages	Under 19	19-64	65 and over
Amount--FY 1969--(in millions).....	\$18,729	\$2,227	\$6,776	\$9,726
Percentage distribution....	100.0	100.0	100.0	100.0
Medicare.....	33.6	---	---	64.8
Medicaid.....	23.6	37.9	21.4	21.9
Veterans Administration and Defense Department.....	17.2	27.8	33.7	3.4
Maternal and child health.....	2.0	14.1	1.0	---
All other.....	23.6	20.2	43.9	9.9

With so much of the total public health funds coming from Medicare and Medicaid, more than half of all the public personal health care outlays in fiscal 1969 was spent on the aged. Of the private funds, however, more than seven-tenths was spent on persons age 19-64:

Age	FY 1969 Amount (in millions)		Percentage distribution	
	Private funds	Public funds	Private funds	Public funds
Total.....	\$33,835	\$18,729	100.0	100.0
Under 19.....	6,189	2,227	18.3	11.9
19-64.....	23,884	6,776	70.6	36.2
65 and over.....	3,762	9,726	11.1	51.9

Type of Expenditure

After examination of the large amounts being spent for medical care, the factors affecting their growth, and the sources of medical care financing, it is useful to look at the type of health care being purchased.

The largest single item of expenditure--representing 43 percent of the average personal health care outlay--was for hospital care, including both inpatient and outpatient services. Expenditures for hospital care continue to be one of the fastest-growing categories, rising an average 16.8 percent per year in the 3-year period ending fiscal 1969. The rapid rise in hospital costs, together with an increase in hospital use contributed to the large increase in outlays.

The second largest category of expenditure was for physicians' services which comprised 23 percent of the total. This category was followed by drugs and drug sundries (12 percent), other professional services (10 percent), nursing home care (5 percent), and all other services (8 percent).

The proportion of outlays spent for each type of service varies considerably by age. For persons in both the 19-64 and 65 and over age groups, hospital care is the largest category, representing 45 and 48 percent, respectively. But for a youth, hospital care is only one-quarter of his bill and physicians' services, comprising one-third, is the largest.

Nursing-home care is the second largest category for an aged person, with 16 percent of his bill being spent for this purpose. It is less than 1 percent of the bills for persons in the younger age groups, as shown below:

Type of expenditure	Percentage distribution			
	All ages	Under 19	19-64	65 and over
Amount--FY 1969--(in millions).....	\$52,564	\$8,415	\$30,659	\$13,490
Percentage distribution..	100.0	100.0	100.0	100.0
Hospital care.....	42.9	24.6	45.4	48.4
Physicians' services.....	22.7	33.4	22.9	15.5
Other professional services.	9.7	15.2	10.8	4.0
Drugs and drug sundries.....	11.9	13.0	11.9	11.5
Nursing home care.....	4.6	.2	.7	16.1
Other health services.....	8.2	13.6	8.3	4.5

Although there are substantial differences in the amounts spent for each age group, the extent of the differences varies by type of expenditure. The average hospital expenditure of an aged person (\$335) was more than 12 times that for a youth (\$27) and more than two and one-half times that for a person in the intermediate age group (\$126). For physicians' services, the average expenditure for the aged person (\$107) was 3 times that for a youth (\$37) and less than twice that for a person in the intermediate age group (\$64).

The distribution by type of service also varies according to source of funds. Looking at total fiscal 1970 expenditures (both personal and nonpersonal), it was found that of the \$42.3 billion spent from private sources, about three-tenths was for hospital care; of the \$25.0 billion from public funds, half was for hospital care. Similarly, nursing-home care comprised less than 3 percent of private expenditures but represented 7 percent of the public outlays. The proportion spent for medical research was also smaller in the private sector: less than 0.5 percent, compared with 7 percent in the nonprivate sector.

For drugs, however, 15 percent of the private medical care dollar was spent but only 2 percent of the public dollar. Thirty-five percent of the private health dollar purchased services of health professionals--doctors, dentists, nurses, and other medical professional personnel; only 15 percent of public funds were spent for these services.

This paper has presented a brief description of spending in today's medical care system. With costs so high, it is evident that changes in the financing and delivery of medical care are needed. The direction and magnitude of these changes are yet to be determined.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

THE EFFECT OF CONSUMER CREDIT ON FOOD EXPENDITURES

Talk by Joan C. Courtless
Consumer and Food Economics Research Division
at the 1971 National Agricultural Outlook Conference
Washington, D. C., 1:15 P.M., Wednesday, February 24, 1971

Today there is very real concern that the dietary level of U.S. families is not keeping pace with the increases in our material prosperity. We are faced with the fact that the proportion of families with good diets declined. Far from the improved nutrition our higher real incomes should make possible, between 1955 and 1965, the last periods for which comparisons are possible, the proportion of family diets meeting the 1963 Recommended Dietary Allowances of the Food and Nutrition Board of the National Research Council actually dropped 10 percent. The seven nutrients studied were protein, calcium, iron, vitamin A value, thiamin, riboflavin, and ascorbic acid.

Those of us who are concerned with the situation have been looking for explanations, for it is only as we understand a situation that we can take effective action to correct it. Part of the reason for the worsening of diets is not hard to find. The surveys themselves show that it lies in the choices families make--increased consumption of soft drinks, and decreased consumption of milk, increased consumption of snacks, and decreased consumption of vegetables and fruits. The average person's diet in 1965 was poorer than in 1955 by the equivalent of 1.6 cups of milk and 4 servings of vegetables and fruits per week. Here is one explanation of why so many American diets are below recommended levels in calcium, vitamin A value, and ascorbic acid.

Another cause for the deterioration in diets may be that the level of spending for food has not risen as much as changes in income levels and price levels would have led one to expect. Between 1955 and 1965 the per capita value of food reported in the surveys increased by 23 percent while per capita income rose 60 percent and food prices 16 percent.

The work we are reporting today looks at the budgetary aspects of the problem and tries to establish one--but not necessarily the only--reason why food expenditures have not increased more than they have. Our hypothesis is that the use of consumer credit is cutting into the money available for food. The line of reasoning runs like this: The possibility of spreading

payment for durable goods over time through the use of installment credit has increased expenditures for durables. Installments due on consumer debt and other fixed commitments such as house payments (rent or mortgage and taxes) and insurance have a first lien on family income. Therefore, if these sets of fixed commitments are high, food and the other categories of living expenses met out of the residual must fall to compensate.

This explanation for the failure of food expenditures to increase more rapidly suggests itself because the use of consumer credit has burgeoned in recent years. In the sixties, per capita consumer installment debt outstanding more than doubled, rising from \$219 at the end of 1959 to \$480 at the end of 1969. Moreover, the rate of increase was steeper in the last 5 years than in the first five.

We have been able to explore this hypothesis as part of a small study in which we got from families very full information on their use of credit. By getting information on the usual food expenditure as well, we have been able to determine whether there is a relation between the level of payment on debts and the level of food expenditures in our small sample. The survey was made cooperatively by CFE and the College of Home Economics of Oklahoma State University, in Enid, Oklahoma, a city with a population of about 45,000. We limited our sample to families in which there were both husband and wife and the husband was under 45 years of age. This is the group in which the use of installment credit tends to be heaviest.

Of the 343 families used in this analysis, 81 percent were making payments on consumer debts at some time during the survey year (July 1, 1968 - June 30, 1969). Average after-tax income for these credit-using families was \$7,246, as compared to \$8,478 for the 19 percent having no consumer debt in the survey year. About 44 percent of the 343 families allocated at least 10 percent of their after-tax income to debt repayment and 27 percent paid out over \$1,000 on consumer debt in the survey year. The average annual food expenditure was \$1,465. ^{1/}

To determine what effect, if any, debt repayment has on food expenditures regressions were run in which debt repayment and after-tax income were the independent variables and food expenditure was the dependent variable. Separate regressions were run for selected family types and sizes and for the two extremes of the income distribution. In this sample, each dollar of debt repayment decreased food expenditure by \$.07. In other words, 7 percent of debt repayment was being financed at the expense of food. Had this money been available and used for food, families would have spent about \$46 more per year on food, on the average. This amount would have carried the average family about 1 1/2 weeks.

^{1/} Families were asked "About how much do you usually spend per week for food for your family? Do not include nonfood items purchased at the grocery store." We have multiplied their responses by 52.

Debt repayment did not affect food expenditures uniformly among families differing in type and size. The effect was greatest in families consisting of husband and wife only. Each dollar used by these couples in debt repayment cut food expenditures by \$.25. These families also made about average debt repayments. The cumulative effect of the two factors is a reduction of \$166 in their food expenditures, an amount that would have provided them food for seven weeks at the level of spending they could have been expected to maintain if they had had no consumer debt. In contrast, the food spending of families with one or two children under six years of age was little affected by their debt repayment although they carried almost as much consumer debt.

Because the study did not provide information on savings and expenditures other than food, we do not know how consumer debt affected other categories of consumption. Furthermore, one can only speculate on the reasons why the effect on food expenditure was different among types of families.

The effect of debt repayment on food expenditures also differed over the range of income. A dollar used for debt repayment by families with after-tax incomes of \$10,000 or more cut deeper into food expenditures than at the average income level, reducing them by \$.13 rather than \$.07. This, combined with a higher than average level of debt repayment, resulted in a total reduction of \$107 in food expenditures for the year, the equivalent of almost 3 weeks' food money.

Among families with after-tax incomes of \$5,000 or less, debt repayment was associated with increased rather than decreased food expenditures. A dollar used for debt repayment resulted in \$.09 more in food expenditures, giving these families an additional \$59 for use on food. To understand why consumer debt affected this class of families in a way unlike any of the other classes examined, one must remember that the classification of families is by the income they had in the survey year and that there is considerable year-to-year variation in the income families receive, particularly if their principal source of income is not salaries. Therefore in such a classification, there will be two groups of families, those who are in their normal income position, more or less, and those who are temporarily or newly displaced down the scale. When income falls, families frequently do not adjust immediately to the new level. Instead they use savings or credit to maintain at least in part their old scale of living. Some of these families may have done so. If by dipping into savings they were able to meet their credit commitments and eat better than families normally at this income level, and if their credit commitments were in line with their old rather than their new incomes, then a positive relation between food expenditure and debt repayment would result. If, in addition, some maintained their higher food expenditures by borrowing, the positive relationship would be even more marked. In the under-\$5,000 income class, new debt assumed during the year was disproportionately high--24 percent of the year's income as compared with 12 percent for the average family--suggesting that borrowing to maintain the level of living did take place.

The findings reported today are suggestive and tentative. The sample was small and not representative of the total U.S. population. Nevertheless, the work indicates that further investigation on a larger scale would be effort well spent. The proposed 1971-72 Survey of Consumer Expenditures should provide excellent data with which to determine the effect of the level of use of consumer credit not only on food expenditures but on the whole gamut of living expenses and on savings.

In this sample, the proportion of variation in food spending that is explained by the level of credit used is very small. Credit and income together explain only 9 percent of the variation in the total sample and in the high income group the proportion explained fell to 2 percent. This should not be interpreted to mean that these are unimportant factors. It is hardly necessary to labor the point that income is an important determinant of the level of food expenditure. Rather it is an indication of the multiplicity of factors acting upon food spending.

We are presenting these preliminary findings to you now because of your interest in the problems of money management and the wise use of credit. You may find these facts, however preliminary, useful in counseling with families as to the ill effects involved in unwise and excessive use of credit. Families themselves often do not realize how the debt they assume may affect their expenditures for living. In the survey, only one in eight of the families who assumed new debt in the survey year expected to have to cut their usual expenditures to meet their installment payments. But 36 percent of the families making payments on debts assumed earlier reported they had had to make one or more unplanned cuts to meet payments. Although clothing and recreation were mentioned as areas in which cuts were made, food was cited most frequently.

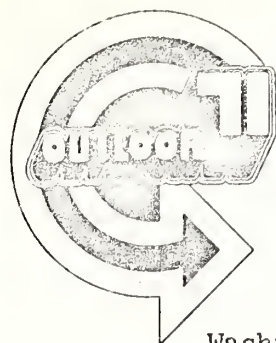


Food expenditures and payments on consumer debt, by family type and size and after-tax income, Enid, Oklahoma, 1968-69

[Families of husband and wife, with or without children, in existence at least 1 year. Husband under age 45]

Data	All	Selected family types and sizes				Selected after-tax income classes	
		Husband & wife only	1 or 2 children, oldest under 6	3 or 4 children, oldest 6 - 17	6 or 7 children, oldest 18 - 24	Under \$5,000	\$10,000 & over
Families -----no-----	343	49	94	74	95	67	51
After-tax income -----dol-----	7,480	7,344	6,231	8,061	8,240	3,996	12,376
Debt repayment -----dol-----	658	663	626	637	704	655	824
Debt acquired in year -----dol-----	878	1,057	906	870	761	960	1,088
Food expenditure -----dol-----	1,465	1,067	1,084	1,519	1,859	1,083	1,784
Change in food expenditure related to \$1 increase in debt repayment -----dol-----	-0.07	-0.25	(1/)	-0.06	-0.02	+0.09	-0.13
Total reduction in food expenditure attributable to debt repayment -----dol-----	46	166	(2/)	38	14	59	107
Proportion of variation in food expenditure explained by variation in debt repayment and income -----pct-----	8.8	5.6	8.4	8.5	4.4	5.4	1.7

1/ \$0.005 or less.
2/ \$0.50 or less.



UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR COTTON IN 1971

Talk by James R. Donald
Economic and Statistical Analysis Division
at the Annual Agricultural Outlook Conference
Washington, D.C., 3:30 P.M., Wednesday, February 24, 1971

The U.S. cotton outlook this year is highlighted by prospects for increased disappearance despite a little smaller supply and higher prices. The increase in disappearance reflects better export prospects. The cotton supply is down since the larger 1970 crop is more than offset by smaller beginning stocks. Disappearance is expected to exceed the 1970 crop over 1 million bales (figure 1).

Carryover of 4-1/2 Million
Bales Likely

Next August, around 4-1/2 million bales of cotton likely will be on hand, down more than 1 million from last summer. This would be the smallest carryover since 1952.

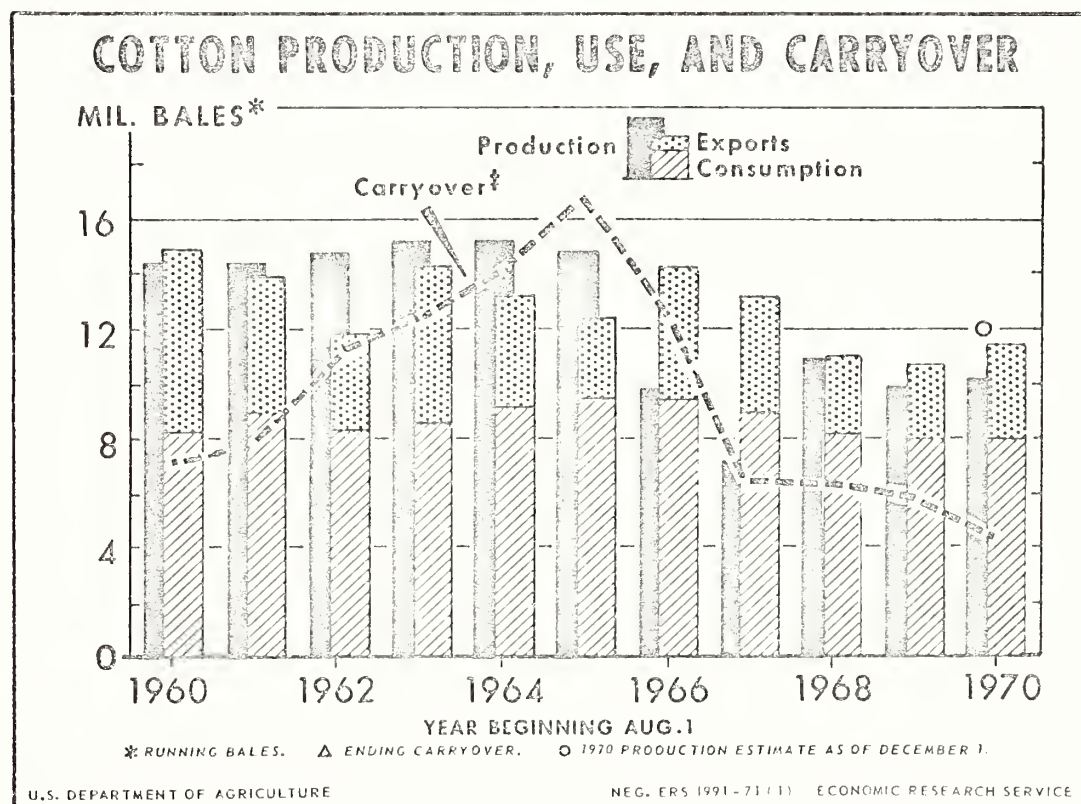


Figure 1

CCC will account for most of the decline in stocks this year. Acquisitions from the 1970 crop likely will be well below those from the 1969 crop. Also, unsold CCC inventories will be reduced. Even though the crop is larger, much less 1970-crop cotton has gone under loan. Lighter loan activity so far has reflected prices for most qualities above loan levels and stronger demand than last year. With reduced acquisitions from the crop and greater sales of inventory cotton, CCC stocks this summer may be down a little over 1 million bales from the 3-million-bale level of last August. Trade stocks may be down to around 2-1/2 million bales, slightly below August 1970.

U.S. Share of World Trade Increases

Cotton exports this season may total about 3-1/2 million bales, up from last year's small total of 2-3/4 million bales. For August-December, shipments totaled nearly 1.0 million bales, up about one-fourth from the year-earlier period. Exports have picked up this season with the increasing availability of the 1970 crop. Sharply lower foreign Free-World production prospects this season and a slight gain in consumption point to continued strong demand for U.S. cotton.

World cotton trade may remain at last year's level of around 17 million bales. So, the U.S. share of world trade probably will increase to about one-fifth, up from last season's low of about 17 percent.

Foreign export availabilities generally have been increasing in the last 2 decades, meaning that cotton production abroad has risen faster than consumption. Consequently, the gap between foreign Free-World cotton consumption and production has been narrowing (figure 2). However, the gap widened last year and is expected to widen further this season, mostly reflecting reduced cotton production levels.

Cotton's Share About Maintained

Cotton appears to be nearly holding its own domestically in competition with man-made fibers. Cotton's share of mill use in calendar 1970 probably stayed near the 40 percent share in 1969 (figure 3). Man-made fibers likely accounted for about 57 percent of the market last year--up about 1 percentage point and the least gain since 1960.

For the 1970/71 crop year, cotton mill use may equal or slightly exceed last season's level of 8 million bales. Early this season, the rate of use was lagging. But it has picked up recently. In December it went above a year earlier, and may continue to do so in coming months (figure 4). Mill cloth inventories in relation to unfilled orders are not excessive, and any pickup in general economic activity would benefit cotton use.

However, the level of cotton use remains well below the 1965-69 average of 8.8 million bales. Besides the competition from man-made fibers, cotton consumption has been hurt by increasing cotton textile imports and reduced military purchases of cotton textiles.

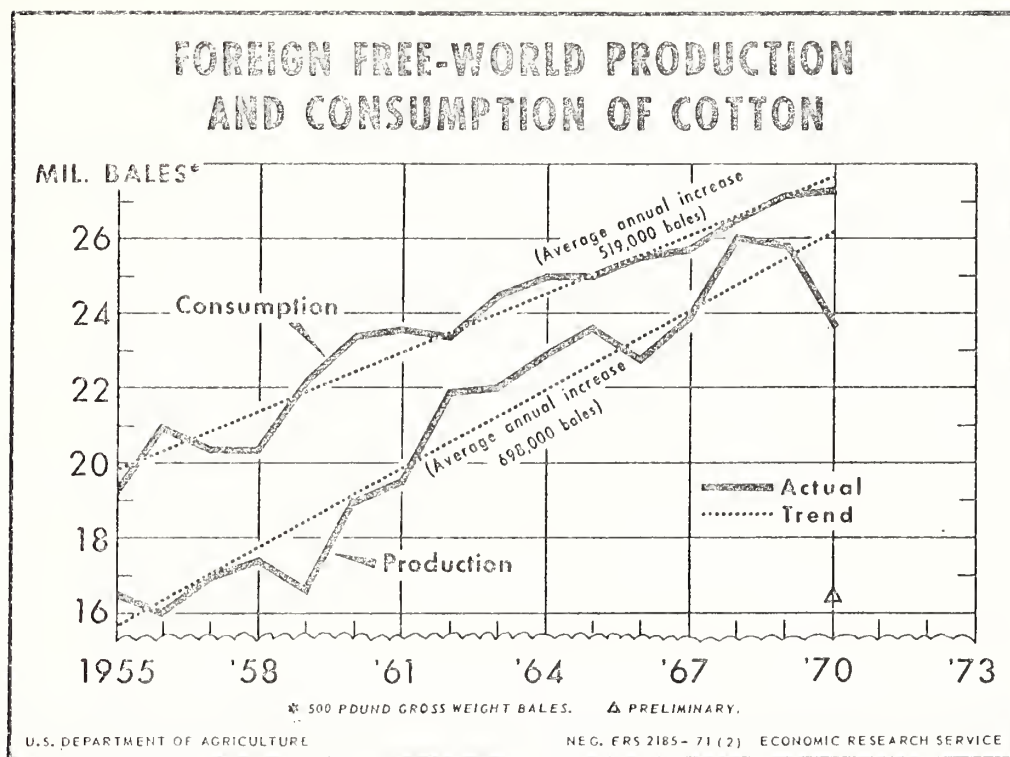


Figure 2

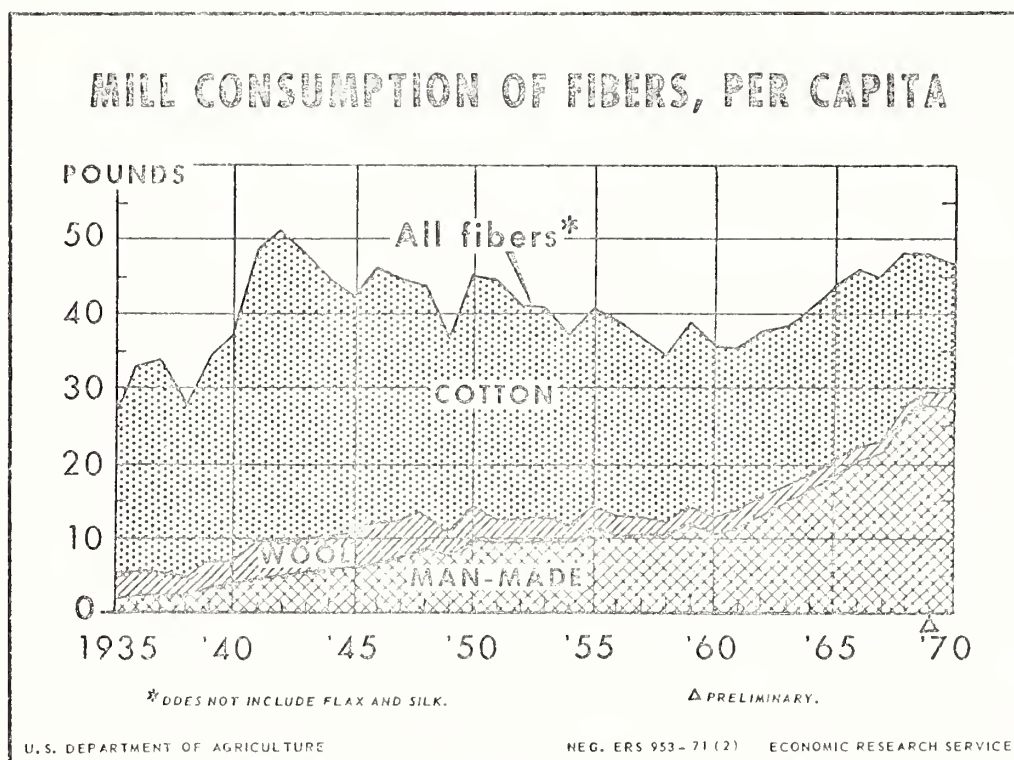


Figure 3

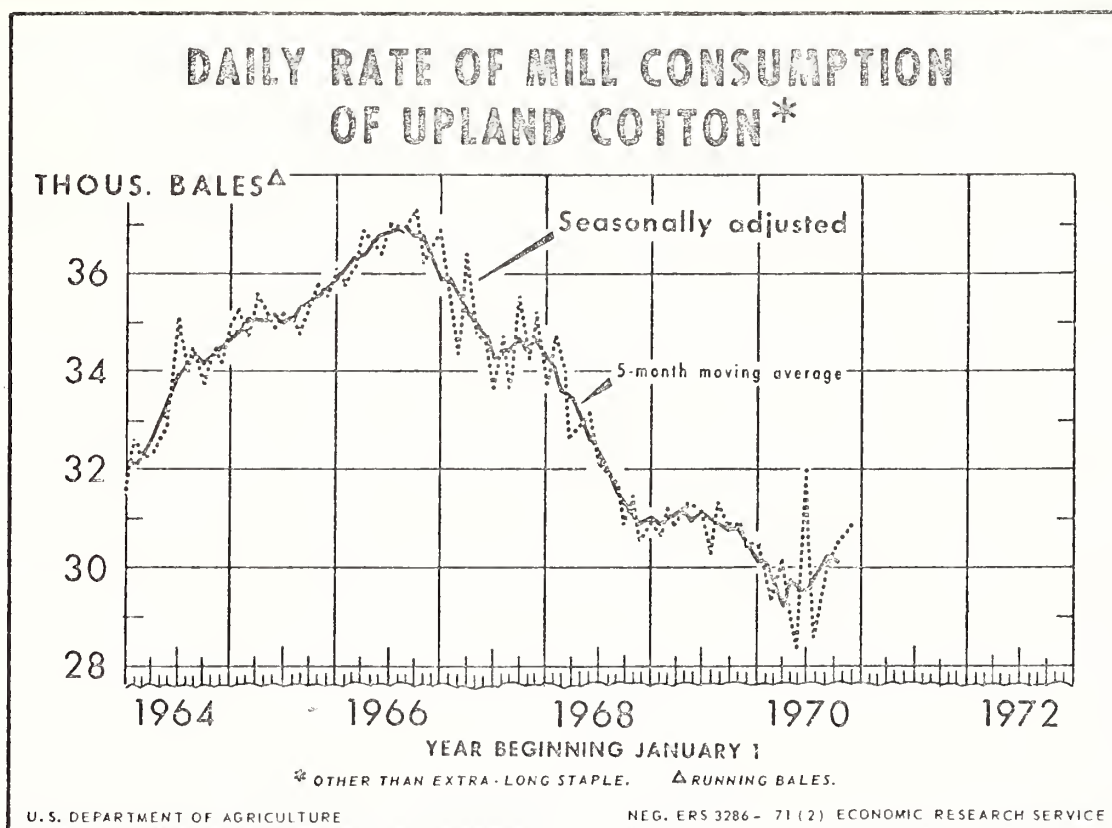


Figure 4

Man-made fibers remain cotton's chief competitors, particularly the non-cellulosic fibers. Figure 5 shows, however, that their upward trend in use has slowed. Consumption of man-made staple fibers on cotton system spindles fell 9 percent during August-December from the year-earlier period, while cotton use declined only about 2 percent. For the man-made staple fibers, a drop of over 20 percent in rayon and acetate fibers more than offset a gain of less than 1 percent in non-cellulosic fibers.

The cotton industry is striving to meet competition from man-made fibers. In 1969/70, upland cotton producers contributed about \$9.4 million to the cotton research and promotion programs. The budget for the 1971 program amounts to \$10 million. A heavier concentration of effort is on research, about one-half of the total compared with about one-third in prior years.

The Agricultural Act of 1970 provides for additional funds for cotton research and promotion efforts. For the 1971 through 1973 crops, up to \$10 million annually may be available out of government savings resulting from the limitations on payments to producers. In addition, for both the 1972 and 1973 crops, the Secretary of Agriculture has the discretion to make an additional \$10 million available for research and promotion.

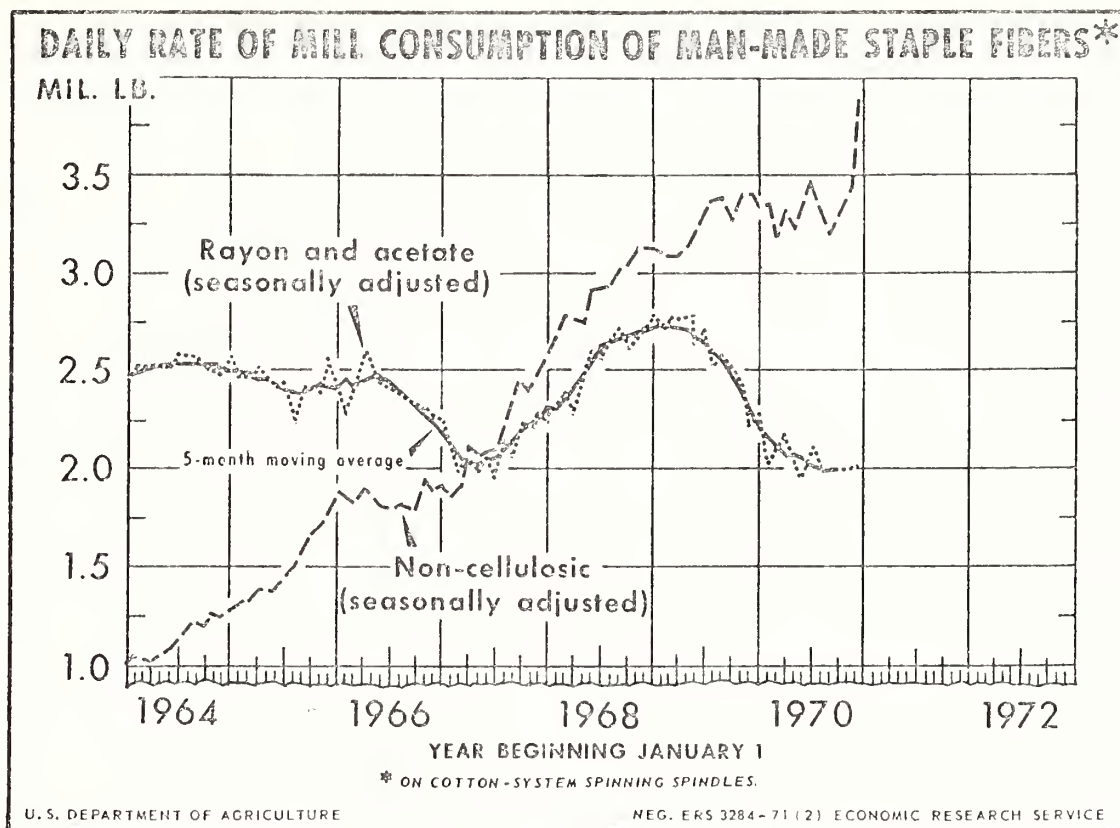


Figure 5

1970 Crop a Little Larger;
Prices Generally Higher

The 1970 cotton crop of about 10.2 million bales is up slightly from last season's 10 million-bale crop. Plantings were increased slightly and the average yield is a little higher. Weather and insect problems were again encountered. The national yield of 441 pounds was up from 434 pounds in 1969 but well below the trend-yield, as shown in figure 6.

On the quality side, the staple composition by major groupings may not differ much from 1969, although the proportion of shorter staples may increase slightly. Ginnings to January 15 contained a little smaller proportion of cotton stapling 1-1/16 inches and longer and the average staple length of ginnings was a little shorter.

Market prices for cotton generally have been stronger this season, with the shorter staples doing the best--reflecting their tighter supply in relation to demand. The average spot market price for Middling 1-1/16 inch cotton in early February was about 25.00 cents per pound, up slightly from the year-earlier level. For Middling 15/16 inch, the early February price averaged about 22.00 cents, up nearly 2 cents from a year earlier. For some qualities prices are up more sharply.

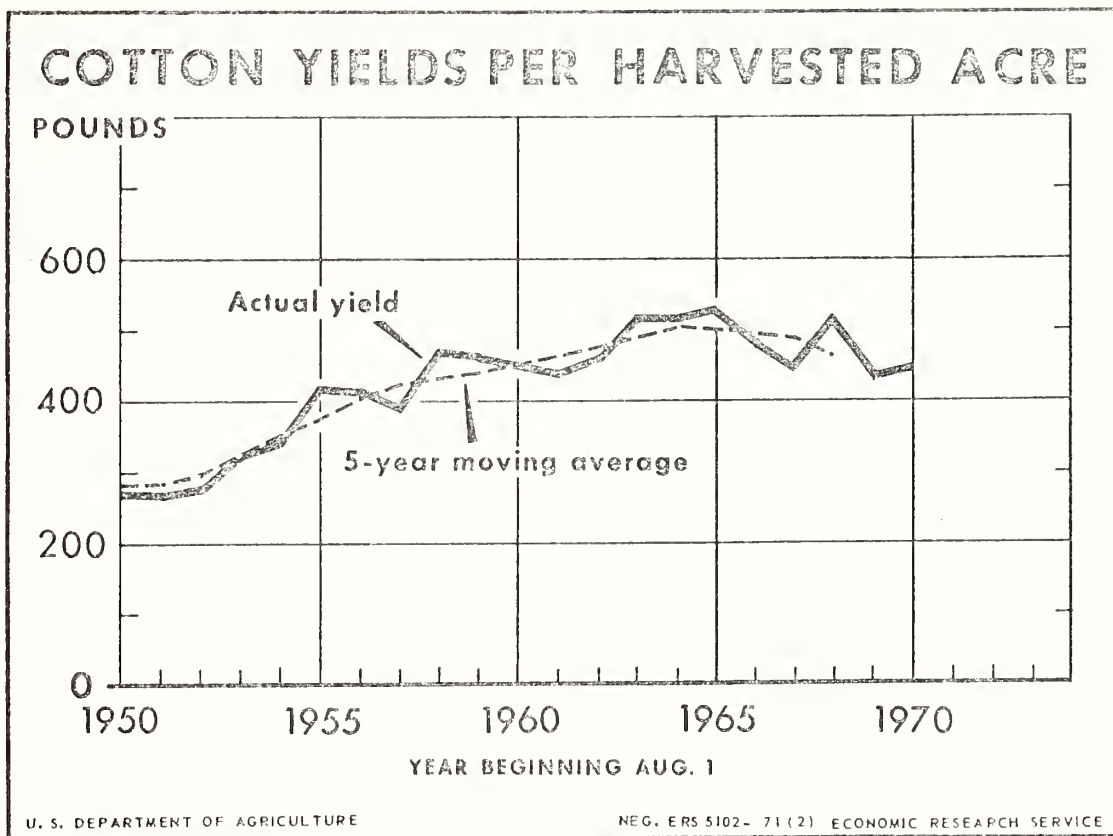


Figure 6

Farmers' prices for all kinds of cotton to December 1 averaged 22.5 cents per pound, well above the season average of 21.09 cents for the 1969 crop. The support price for the 1970 crop of upland cotton (average of the crop) is 20.15 cents per pound. This is slightly higher than the 19.71 cents for the 1969 crop. Also, the direct price support payment rate was increased for the 1970 crop to 16.80 cents per pound, up from 14.73 cents for the 1969 crop.

1971 Plantings About the Same

Cotton producers indicated January intentions to plant about 11.8 million acres of upland cotton in 1971. This compares with 1970 plantings of 11.9 million acres and the 1966-70 average of 10.8 million. Only the Southwest indicates plantings above the 1970 level. However, when the 1971 planting intentions survey was conducted, farmers did not have complete information on the new cotton program provisions. Any changes in farmers' intentions will be reflected in the regular spring intentions report to be released March 16.

The 1971 loan rate for Middling 1-inch cotton (at average location) is 19.50 cents per pound, net weight, good micronaire. This is down about 2 cents from the comparable 1970 level. The price support payment, at 15.00 cents per pound, is down from 16.80 cents in 1970 but total acreage for payment is up slightly for the 1971 crop.

U.S. Cotton Textile Trade Less Active

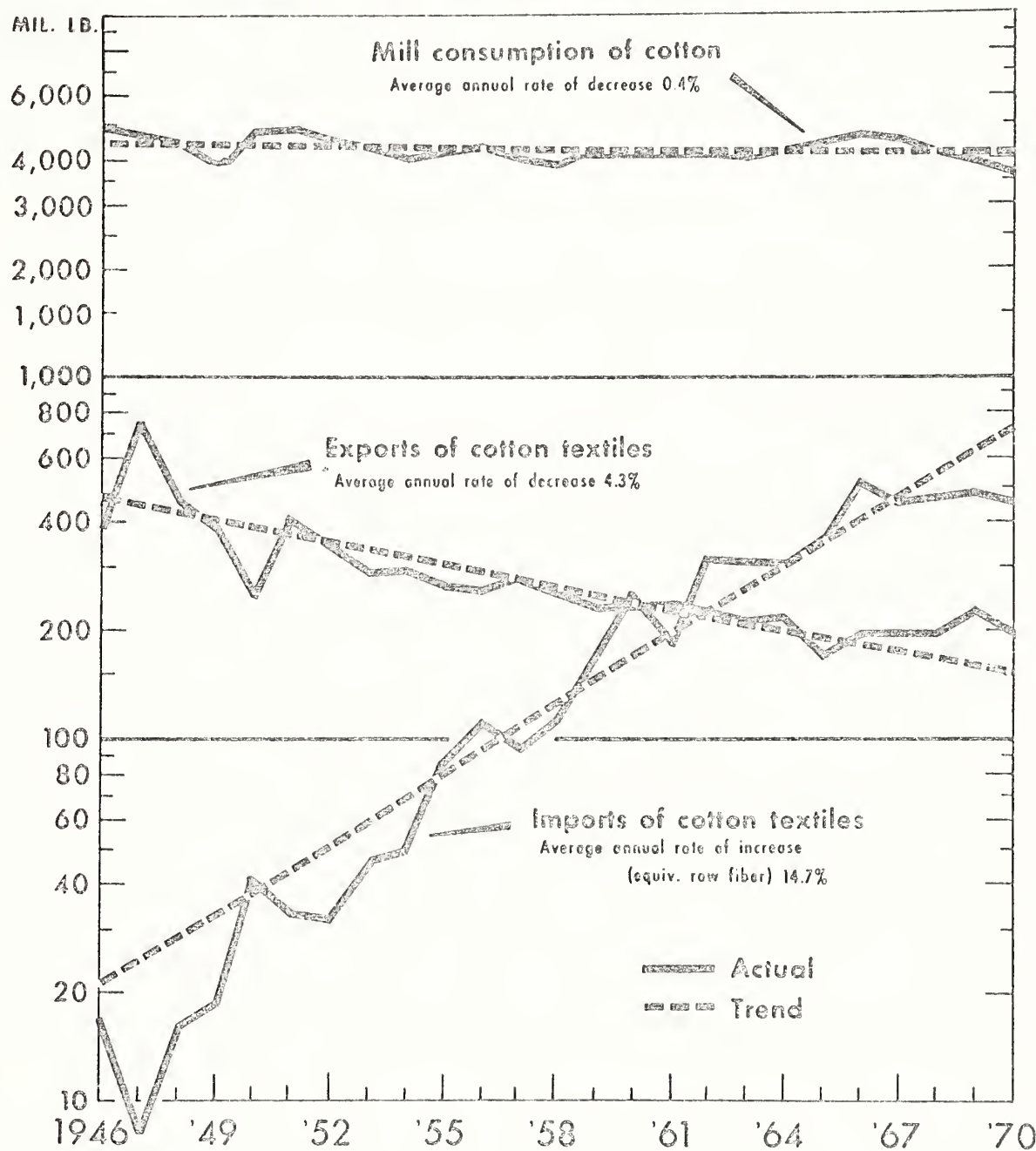
U.S. imports of cotton textiles during calendar 1970 totaled slightly under 1 million equivalent bales of cotton, down about 3 percent from 1969.

Exports of U.S. cotton textiles are much smaller than imports. Exports totaled a little over 400,000 equivalent bales in 1970. This was about 14 percent below 1969 when larger PL 480 shipments boosted total cotton textile exports.

During the past several years, cotton textile imports have increased not only in quantity but also as a share of the domestic market for cotton, although the penetration slowed in 1970. Imports accounted for about 12 percent of the market in 1970, about the same as in 1969 but up from 10.7 percent in 1968 and 9.5 in 1967.

Since 1946, U.S. imports have increased at a sharp rate, while exports have declined at a moderate rate (figure 7). Over the same period, mill consumption has declined at a rate of 0.4 percent per year.

U.S. POSTWAR TRENDS IN COTTON CONSUMPTION AND COTTON TEXTILE TRADE*



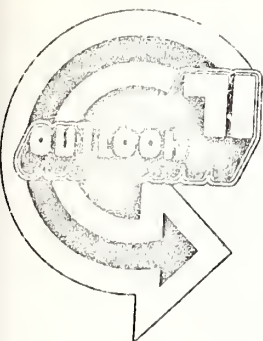
TRADE DATA IN RAW COTTON EQUIVALENT POUNDS.

1970 PRELIMINARY.

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 4381-71 (2) ECONOMIC RESEARCH SERVICE

Figure 7



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UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

AGRICULTURAL FINANCE: OUTLOOK FOR 1971

Talk by Carson D. Evans
Farm Production Economics Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 2:15 P.M., Wednesday, February 24, 1971

Agricultural Finance: Outlook for 1971

The use of credit is an increasingly necessary and important tool in the business of farming. Farm credit has come in for increased attention in the last several years along with credit and financing in other sectors of the economy. Rather rapid and far-reaching changes have taken place in farm finance in the last few years. We naturally wonder what is in store for the future.

Basically, here is the gist of what we see for agricultural finance in 1971. (1) Loans will be more available than in the last several years; (2) interest rates will be 1 percentage point or more below the 8 and 9 percent rates commonly charged in much of 1969 and 1970; (3) large amounts of farm credit will be used; (4) real estate loan activity will show renewed activity; and (5) there will be no great change in the financial condition of farmers from a year earlier.

Having made these statements of what we can expect in farm finance in 1971, some elaboration of how we arrived at such expectations may be in order. Maybe we can see more about where we are going if we look back a year or so and see how we got where we are.

In mid-1967 a siege of tight money began in the general economy that lasted for the next 3 years. The tightening situation was relatively mild for the first year but then the screws were applied in earnest. Interest rates climbed rapidly and availability of loan funds was curtailed. Inflated prices of goods

and services were fed by expectations of further inflation. Many industries were using high priced money to expand capacity before interest rates went any higher. In many instances the farming sector was caught up in the economic tide, but was spared some of the consequences in other instances. With respect to credit supply, commercial farmers generally were better off than some other borrowers, including some of the industrial giants. In most cases needed loans were available and at interest rates less than some large, well known corporations had to pay.

Farm debt increased \$9.6 billion in the 3 years, 1968-70. That was an average of about 6 percent a year compared with an annual average of about 10 percent over the previous 7 years. Although the increase slowed in amount of credit used, the rise in total interest charges to farmers did not slow. Higher interest rates caused interest charges on farm debt in 1968-70 to climb annually about 10 percent--the same rate of the previous 6 or 7 years. In 1970 interest charges on farm debt totaled \$3.7 billion.

With farmers, and probably with others in the general economy, the tight money situation was most critical beginning in the second half of 1969 and lasting through most of 1970. Interest rates were at historical highs--generally ranging from 8-1/2 to 9-1/2 percent and higher. Rates on real estate loans were often higher than for short-term loans. That was an unusual situation and caused some shifting in farmer borrowing from long-term to short-term loans. This is evident in the \$.8 billion (3.0 percent) increase in farm real estate loans in 1970 compared with a \$2.4 billion (8.9 percent) increase in farm non-real estate loans. Usually increases in the two types of loans are fairly even.

Interest rates on farm loans in 1970 stayed at the relatively high levels until near the end of the year. In the third quarter of 1970 the easier money policy of the Federal Reserve, put into effect earlier in the year, began to show results. The slight easing of the tight money situation in the central money markets and the increased rate of savings by individuals fed the money supply. Interest rates began to slip from the high plateau reached several months earlier. By the end of the year, borrowers in the "retail money markets" were feeling some slight relief.

The value of farm real estate (farmland and buildings) has increased about 5 percent per year since 1955. In 1969 the rise slowed to about 3 percent and 1970 saw an increase of less than 2 percent. Of course, geographical areas showed variations in the amount of change. On a per acre basis, 21 States had a price increase of 5 percent or more. Most of these were along the Atlantic and Gulf Coasts where industrial development may have exerted influence. Other States had smaller changes in farmland price with several major farming States (Indiana, Illinois, Kansas, Arizona, and California) showing declines of 1 to 5 percent.

High interest rates brought on by the tight money situation were probably the overriding cause of the slowdown in the advance in farm real estate loans. With interest rates at 9 or 9-1/2 percent the profitability of farm enlargement on credit is much less than when long-term rates are 5 or 6 percent.

Farm income ran along at a relatively high rate in the first half of 1970, but slowed considerably in the last half. While most crop prices strengthened, hog prices slumped.

Some farm families which had come to depend to a telling degree on income from nonfarm employment received disappointments late in 1970. Layoffs and slowdowns caused by sluggish economic conditions and strikes in related industries resulted in less income than expected.

The effects of the Southern corn leaf blight on the 1970 corn crop cut yields sharply; the possible effects on this year's crop are still speculative.

It was quite late in 1970 (November) before the new farm law was nailed down. For a long time before the Act authorizing the new 3-year program was passed, there were indications that it would contain certain provisions for cotton, wheat, and feed-grains; but none of the indications were strong enough to persuade farmers to make costly preparations to comply with the then unknown details of the program.

With that background, let's move again to a discussion of what is ahead in farm finance for 1971. First, our knowledge of the farm finance situation is aided strongly by opinions of many persons in the Farm Credit System, Federal Reserve System, life insurance companies, bankers, USDA personnel and others across the Nation who are knowledgeable about farm credit and the farming sector in general and from whom we solicit information. We are indebted to these people for their help.

We said farm loans will be more available in 1971 and at lower interest rates than in the last year or so. There has been a definite softening of the tight money situation in the last 6 months. This loosening has become more evident to the consumer borrower in the last 2 months. The supply has grown, interest rates in large city banks have dropped rapidly. The Federal Reserve discount rate has dropped rapidly since December of 1970. The cost of money borrowed by Federal intermediate credit banks in March 1971 will be less than half what it was in June 1970. (June 1, 1970--8.15 percent, March 1, 1971--4.00 percent). New Federal land bank 14-month bonds sold in February 1971 carried a rate of 4.45 percent compared with 8.5 percent for those sold a year ago.

These trends mean that more money is available and at lower interest rates. However, even if rates drop 1 percentage point or more to borrowers, farmers will not rush out and try to arrange for loans as if they were some great bargain. Rates will still be relatively high compared with rates of most of the past decade.

Nevertheless, some capital purpose needs have been around now for a year or so waiting on a more opportune time to be implemented. Some will now be carried to completion. Most will involve credit. The going rates on farm loans will soon be at or below the usury ceilings in some States in which the ceilings have been restrictive. Life insurance companies and commercial banks will again be able to compete with PCA's and Federal land banks on even terms in those States. (Federal land banks and production credit associations have not restricted their lending because of State usury statutes.)

Combine easier to get and lower priced loans with a new 3-year farm program that encourages larger plantings, add refinancing of some awkward size short-term loans, and the expectations that farm income will bounce back to higher levels after mid-1971, and you come out with larger increases in farm mortgage loans in 1971 than was the case in the last 18 months or so.

Farmers will need loans for operating and machinery purposes as in the past. There is little likelihood that prices for farm inputs will be any less costly than in 1970 and they will probably cost more. The livestock profit picture may stay hazy for several months but livestock production will go on just the same. Borrowed money will be involved.

If early planting intentions are carried through, over 10 million additional acres of crops will be planted in 1971 than in 1970 and over 15 million acres more than in 1969. That will be an increase of 6 percent over last year and 9 percent more than in 1969. This larger acreage will be planted and worked by fewer farmers than last year or the year before. Many farm operations will, therefore be larger. These larger operations will call for increased volume of purchased inputs and most likely larger and more efficient machinery and equipment. Operating expenses and machinery purchases will require borrowed funds. Credit needs will probably be larger than the 6 percent increase in planting intentions imply. On farms that become substantially larger this year, many owners will have to use a large part of any cash on hand for down payments for major capital purpose purchases. Day-to-day operating expenses will be financed on someone else's money.

A number of reporters in our surveys have mentioned that some short-term loans have become unwieldy and will have to be refinanced into long-term loans or otherwise reduced in size. However, new demands for short-term credit will likely more than offset the volume refinanced.

The financial situation of the farming sector is difficult to appraise. Reporters have stated, however, that farm loan repayments remain good; delinquencies and foreclosures are very few. Exceptions were noted in localized areas, which is always the case. Total farm assets are increasing but not as fast as debts in the last several years. This causes less of a rise in equity. Nevertheless our best judgement at this time is that farmers' financial condition remains healthy.

In any real tight money situations some hardships are experienced. The period just past was no exception. We have reports that some small-scale and economically marginal farmers did not receive credit they thought they needed. Some very large farming operations also felt the pinch. However, on balance, farmers seemed to have been fairly well served with credit even in the worst of the recent tight money period.

So, to sum up, we can expect farmers to keep using credit in 1971--possibly increasing the volume as much or more in 1969 or 1970. Compared with 1970, farm mortgages will likely show the greatest rise. Supplying the impetus for the increased use of credit by farmers will be lower interest rates, more availability of loans, larger crop acreage, continued activity in livestock production, larger farm cash receipts, and higher prices of inputs. And underlying it all is the optimism bred in every real farmer that things will be better this year.



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UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR FRUITS IN 1971

Talk by Ralph A. Freund, Jr.
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 2:15 P.M., Wednesday, February 24, 1971

Citrus Fruit

Freeze damage to the citrus crop in January has not been fully assessed. Production currently is expected to be 12 percent more than last season. Declines from January 1 estimates for grapefruit, tangelos, tangerines, and temples more than offset an increase in the estimate for oranges.

Orange production is forecast at a record 208 million boxes, 12 percent above last season. This is 2 million boxes more than estimated on January 1 because of increases for California. In California the Navel crop is smaller than last season but the Valencia crop is larger with the total exactly the same. In Florida both early and midseason and Valencia output is larger than last year. Texas production is greater and Arizona less. United States production of all earlier varieties is up 15 percent and Valencias up 10 percent.

Orange shipments to fresh markets through January were down 8 percent from a year ago with Florida having more and California less. Deliveries of oranges in Florida for processing were a tenth more than a year ago. The average U.S. shipping point price of fresh pack oranges has been above last year's levels and in January was \$5.27 per box, 9 percent above a year ago. California Navels have sold well above year ago price levels and Florida oranges for fresh use at prices close to last year. The on-tree equivalent return of oranges for processing in Florida has been about one-half the level of last year. If the January freeze reduces the crop size and juice yield of Florida Valencia oranges for processing, these prices may increase in coming months.

Grapefruit production is estimated at 60 million boxes, down 7 percent from January 1 but still 11 percent above last season. Florida's crop is 15 percent over last year with all varieties increased. Texas and California production is up but Arizona has less.

Shipments of grapefruit to fresh markets through January were 14 percent more than a year ago. Shipments from Texas have increased most from last year. Deliveries of Florida grapefruit for processing are 45 percent higher than a year ago. The average U.S. on-tree equivalent return for grapefruit has been below last year's levels and dropped more in January to \$1.21 per box, about one-fifth under a year ago. The freeze damage in January may result in higher prices.

Lemon production is estimated at 18 million boxes, 16 percent more than last season. Both California and Arizona have larger crops. Shipments to fresh

markets are below a year ago but sales for processing are more than 50 percent higher. The U.S. average on-tree equivalent return fell sharply in December but rose to \$2.72 per box in January, still 15 percent below a year ago.

The Florida carryin of frozen concentrated orange juice was 53 percent over last year and the pack this season has been much larger. The f.o.b. Florida cannery price of FCOJ is down from a year ago and movement has been one-fourth greater. The Florida carryin of frozen concentrated grapefruit juice was only one-third of the amount last year but the pack this season has run about 2-1/2 times larger. The Florida carryin of canned grapefruit juice was less than half that of a year ago, but the pack this season has been up more than 50 percent. Goods on hand are around 80 percent larger than a year ago and in December the cannery price was reduced.

Noncitrus Fruit

The noncitrus fruit crop in 1970 was 13 percent smaller than in 1969, resulting in higher prices. The apple crop was 6 percent smaller and shipments to fresh markets through January were about one-fourth less. In January the average price received by farmers for fresh use was 6.22 cents per pound, almost 30 percent above a year ago. Stocks of apples in cold storage at the end of December were 12 percent under last year. The estimated farm value of the 1970 apple crop is 8 percent greater than in 1969 and the average price is up 15 percent. With average weather the 1971 crop may increase from the 1970 level with Washington output higher.

The 1970 pear crop was one-fourth smaller than in 1969 and shipments to fresh markets through January were a third less. In January the average farm price for fresh use was \$167 per ton, 64 percent over a year ago. At the end of December, cold storage holdings were nearly 30 percent below last year. The 1970 crop has an estimated farm value 3 percent under 1969 and the average price is almost 30 percent higher. The 1971 pear crop may return to near the 1969 level with somewhat lower prices.

The 1970 grape crop was a fifth smaller than in 1969 with the biggest cuts in table and wine varieties. Shipments of grapes to fresh markets are about one-fourth less than a year ago and California shipping point prices in January were around two-thirds higher. Cold storage holdings are less than half the year ago level. In California less grapes were crushed for wine this season and raisin production was down. The estimated farm value of the 1970 grape crop was slightly larger than in 1969. Grape production in 1971 may recover to near the 1969 level with lower prices.

The winter strawberry crop in Florida is estimated at 136,000 hundredweight, down 6 percent from last year. The estimated acreage to be harvested in all States is less than in 1970.

Although the canned fruit carryin was large, the smaller pack in 1970 resulted in supplies of most canned deciduous fruits being smaller and wholesale prices generally higher than last season. Supplies of fruit cocktail and pears are down and prices range 10 to 15 percent above a year ago. The supply of

Clingstone peaches is also down substantially and f.o.b. prices are around a tenth higher. Movement of canned fruit this season has been significantly under year-ago levels.

U.S. Foreign Trade Outlook

U.S. exports of fresh and processed fruits (including tree nuts) in 1970/71 are likely to fall slightly below those of a year earlier in terms of both quantity and value. In the fresh fruit sector, exceptionally large apple and pear crops in Western Europe as well as again heavy production of oranges and grapefruit in the nearby Mediterranean Area are expected to limit U.S. participation in the important European market. Lemons are the only major fresh fruit that show promise of an export gain over a year earlier.

In the processed fruit sector, exports of canned fruits are expected to decline from the 1969/70 level primarily because of the shorter packs of the two leading export items, canned peaches and fruit cocktail. Exports of processed citrus juices may register an increase over a year earlier but the gain in this instance is not likely to offset the decline in canned fruits. From present indications, it appears exports of dried fruits will closely approximate last season's performance.

Exports of shelled almonds, the principal tree nut moving into export, may exceed last year's very favorable level by a slight margin.

The overall level of U.S. import activity in fresh and processed fruits is expected to increase over that of last year.

Increases are anticipated in the importation of pears and apples from the Southern Hemisphere. Because of the sharp production gains in Western Europe in recent years, Southern Hemisphere apple and pear suppliers are now showing an active interest in the U.S. market. Fresh strawberries from Mexico are again expected to set a new import high for the 10th year in succession. Due to the relatively short storage holdings, imports of grapes, primarily from Chile and South Africa, will likely register an increase.

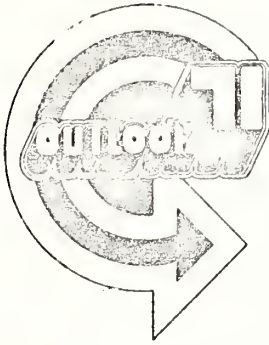
In the family of processed fruits, imports of canned pineapple are expected to continue the mild upward trend of recent years. Import gains are likely for frozen strawberries from Mexico and concentrated apple juice from a wide array of countries in Western Europe. Since a major share of the freeze-damaged fruit was salvaged by processors, Florida's pack of citrus juices will be large, thus eliminating the need for any increase in imports.

U.S. fruit and tree nuts: Production,
average 1964-68, 1969 and indicated 1970

Crop	Average 1964-68	1969	1970
		<u>1,000 tons</u>	
Citrus fruit: 1/			
Oranges	6,414	8,028	9,036
Grapefruit	1,967	2,186	2,437
Lemons	613	590	684
Limes	23	29	33
Tangelos	67	113	126
Tangerines	193	180	214
Temple	200	234	248
Total	9,477	11,360	12,778
Noncitrus fruit:			
Apples	2,872	3,376	3,175
Apricots	184	231	176
Cherries, sweet	103	127	117
Cherries, tart	140	152	122
Cranberries	72	91	104
Figs	58	58	50
Grapes	3,630	3,898	3,102
Nectarines	65	66	66
Peaches	1,643	1,833	1,518
Pears	601	712	541
Prunes and plums	563	482	668
Strawberries 2/	244	243	247
Total	10,175	11,269	9,886
Tree nuts:			
Almonds	77	122	128
Filberts	9	7	9
Pecans	102	113	75
Walnuts	88	106	107
Total	276	348	319

1/ 1969 indicates 1969/70 crop.

2/ Alabama, Connecticut, and Maine included in 1964-68 average and excluded in 1969 and 1970.



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UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

Talk by Robert E. Frye
Marketing Economics Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 3:15 P.M., Wednesday, February 24, 1971

Food and nutrition education has always played a major role in the total program of the Federal and Cooperative State Extension Services. However, new dimensions and emphasis were added when expanded activity in this area was authorized in November 1968 through the Expanded Food and Nutrition Education Program. Changes include orientation of this educational effort toward hard-to-reach families in poverty of which a large proportion are of minority groups living in urban areas. Also in contrast to traditional Extension programs where professionals are the main contact with clients, nonprofessionals are depended upon to deliver this program.

Since field implementation of the program in January 1969, its operation has been expanded to reach families in more than 1,000 counties, independent cities and Indian reservations. It is now operating in all of the 50 states; District of Columbia, Puerto Rico, and Virgin Islands. Plans call for considerable expansion of the program during the current fiscal year.

Family Participation

At the end of September 1970, the latest month for which program data are available, a total of 243,881 families were participating in the Expanded Food and Nutrition Education Program. Between implementation of the program in the early months of 1969 and October 1970, close to 386,000 families--averaging around 4.8 persons per family--have participated in the program for some period

of time. At the end of September 1970, families containing about 1.2 million persons were being worked with. Since inception of the program, it is estimated that families containing more than 1.8 million persons have participated in the program (table 1). During the approximate 21-month period of program operation ending September 1970, around 37 percent of the families enrolled left the program. Reasons for families leaving the program are being examined through an indepth study of a representative sample of program families, but findings are not yet available.

Program Aides

The principal contact with program families is the program aides who work with families individually or in small groups. Aides are generally persons who are indigenous to the community or neighborhood in which their families live. The prime qualification looked for in an aide is an ability to identify and communicate with low-income needy families. At the end of September 1970, 6,683 aides were employed in the program. During the peak month to date May 1970, over 7,000 aides were employed. Programwide, aides worked about 75 percent of full time in September 1970 thus, representing slightly over 5,000 full time equivalent aides. Programwide, the average amount of time worked by all aides has ranged from 69 to 78 percent over the program's life span. The amount of time worked by an aide varies considerable among the states ranging from less than half time to full (40 hours per week).

Between the time the first aides were hired in January 1969 through September 1970, over 13,000 aides have been employed in the program. During this period over 5,000 aides or about 45 percent of the total employed left the program. Reasons for aides leaving the program are not known at this time although a study to examine the role of the aide in more detail is now underway. It appears that some uncertainty as to continuation of the program as well as uneven availability of program funds over time may have resulted in termination of some aides. However, it is likely that some aides who were temporarily terminated were rehired at a later date.

Nonprogram Families

In addition to the work with program families, considerable effort is directed to nonprogram families. Programwide, an average of 42,000 nonprogram families have been contacted or worked with each month by the aides since inception of the program. These are families whom aides contacted during the month but did not obtain specific family record information necessary to classify the family as a program family. It is likely that in subsequent

Table 1.--Families and aides participating in the Expanded Food and Nutrition Education Program at selected time periods

	March 1969	September 1969	March 1970	September 1970
<u>Families</u>				
Participating <u>1/</u>	68,758	138,666	204,475	243,881
Persons	324,404	657,097	981,874	1,196,475
Average size	4.7	4.7	4.8	4.9
Children	NA	NA	584,905	711,566
School children	115,852	259,380	387,286	NA
Cumulative families <u>2/</u> ..	71,507	184,279	291,758	385,710
Cumulative persons	336,082	866,111	1,400,438	1,851,408
<u>Aides</u>				
Employed <u>3/</u>	3,591	4,314	6,886	6,683
Full time equivalents <u>4/</u> ..	2,966	3,262	5,379	5,027
Cumulative <u>5/</u>	4,830	6,738	10,481	12,091

1/ Includes only Program families--those for which specified record information was obtained--and who were participating in Program at end of reported month.

2/ Includes Program families who left the Program.

3/ Total number of aides actually employed at end of month reported.

4/ Full time equivalents are based on a 40 working hours per week.

5/ Includes total number of aides who have been employed to date reported.

months many of these families became program families. The cumulative monthly total of nonprogram families contacted by aides through September 1970 was over 840,000. It should be pointed out that this total does not necessarily represent the number of different families contacted. The same family may be counted as a nonprogram family over an unknown number of monthly reporting periods.

Youth Dimension of the Program

Families participating in the program at the end of September 1970 contained over 700,000 children. In addition to being reached through their families' involvement in the program, close to 53,000 children from program families were being taught food and nutrition through 4-H type activities in September 1970. In addition to children from program families, close to 38,000 children (generally 9-19 years of age) from nonprogram families were involved in the youth component of the FNE Program. Since reporting began in March 1969, between 50,000 and 130,000 children have been involved in the 4-H component on a monthly basis. During the 3-month period, July-September, close to 190,000 different youth were being worked with and close to 12,000 different volunteers participated in this phase of the program. The current information and reporting system provides no information on achievements of the youth phase in respect to change in nutrition knowledge and food consumption practices of the youth or their families, and type and intensity of the youth activities.

Characteristics of Program Families

At this point, it should be obvious that the Expanded Food and Nutrition Education Program has been successful in reaching a large number of families and an increasing number of youth, and involving a sizable number of aides who have been given basic training in food and nutrition and volunteers who work in the youth component. Perhaps the next question to be asked is whether the program is reaching the target--low-income needy families (table 2). At the end of March 1970, 63 percent of the families participating in the program had annual income of less than \$3,000. Less than 10 percent of the families had income of \$5,000 and over. With program families averaging 4.8 persons, it appears unlikely that many families were above the poverty line. The economic status of program families is further reflected by the fact that over 30 percent of the families were on welfare and over 40 percent participated in either the Donated Foods or Food Stamp Programs.

Further examination of the profile of program families indicated that the effort to establish the program in urban areas and to involve minority groups

Table 2.--Profile of families and aides participating in the Expanded Food and Nutrition Education Program at selected time periods

Characteristic	March 1969	September 1969	March 1970
	<u>Percent</u>		
<u>Families</u>			
Residence			
Urban	53	59	59
Rural non farm	36	32	33
Farm	11	9	8
Receiving Welfare	29	32	32
Homemakers with less than 8th grade education	34	32	34
Participating in			
Food Stamps	14	15	18
Donated Foods	24	23	23
Total	38	38	41
Annual family income			
Under \$1,000	24	19	16
1,000 - 1,999	26	25	25
2,000 - 2,999	21	21	22
3,000 - 3,999	15	17	18
4,000 - 4,999	8	10	10
5,000 and over	6	8	9
Ethnic grouping			
Caucasian			
Families	29	33	33
Aides	40	39	43
Negro			
Families	54	50	48
Aides	47	48	43
Spanish-American			
Families	14	15	17
Aides	11	11	11
Other			
Families	3	2	2
Aides	2	2	3

has been successful. At the end of March 1970, close to 60 percent of the program families lived in urban areas. Less than 10 percent of the families reached by this Department of Agriculture program lived on farms.

Classification of program families by ethnic group show that programwide, white families constituted about a third of those being reached in March 1970, Negro families close to one half, and Spanish-American slightly under one fifth. The ethnic or racial profile of program families varied sharply among states reflecting only in part the states total population composition. In several western States, Spanish-American and Indian families accounted for a substantial to major portion of the total families reached. In most southern States, a majority of the program families were Negro.

The challenge of the program as an educational effort is illustrated by the fact that over 30 percent of the family homemakers reported less than 8 grades of schooling.

As the program has matured only minor changes appear to have taken place in the characteristics of families being reached. There has been some increase in the proportion of urban families; a slight increase in proportion of families with annual income of over \$3,000, a slightly larger portion of Caucasian families (between March 1969 and September 1969) and a decrease in proportion of Negro families with an accompanying increase in proportion of Spanish-American families.

The profile of program families is related both to program growth and characteristic of families leaving the program. It can be surmised that earliest program effort in the states was directed at areas where the need was greatest. Similarly within specific areas the earliest program families were probably those with the most obvious need. As the program was expanded within a given area as well as to new areas, it was logical that less needy families would be recruited.

Characteristics of Families Leaving the Program

A considerable number of families are continually leaving the FNE Program, many before second food readings are obtained. Study of a representative sample of families is now underway to determine reasons for families leaving the program and to determine if specific socioeconomic characteristics are associated with families leaving the program. Data on reasons for families leaving the program are not yet available but profile data are available for comparison of a representative sample of families who were in the program in mid-May 1970 and those who had left the program before that date (table 3).

Table 3.--Profile of families leaving and remaining in the Expanded Food and Nutrition Education Program through mid-May 1969
(Preliminary sample data)

Characteristic of family or homemaker	Families in Program	Families out of Program
	Percent	Percent
Families with more than 4 persons	52.0	42.6
Families with at least 1 male	87.5	83.8
Families with children	77.8	72.4
Families with children in school	63.0	51.1
Families with children in School Lunch Program	45.5	34.8
Homemakers less than 30 years of age ..	22.3	30.7
Homemakers with less than 8 years of education	40.3	37.7
Caucasian	29.5	38.0
Urban residence	57.3	60.0
Families owning homes	45.5	39.0
Less than \$3,000 annual income	64.3	59.9
On welfare	34.3	28.7
In U.S. food program	35.3	30.9
Purchases food at supermarket (primarily)	71.3	73.0
Families with home garden	34.2	29.9

A comparison of these two groups of families, while not showing extremely sharp difference, indicates a greater tendency for certain types of families to leave the program. Families leaving the program tend to be smaller, not have children, be younger, more educated, white, urban, homeowners, have higher family income, not be on welfare or participate in USDA food assistance programs; and not have a home garden.

Profile data on sample families who were still in the program at the time of the survey closely corresponds to that of the total population provided by the unit reports most nearly coinciding with this data.

Achievements of the Program

A strong case for claiming positive achievements from the program can be made on the basis that the program has been successful in enrolling a large number of very low-income families, has successfully secured participation of urban and in many instances inner city families and has gained acceptance and participation of minority groups. Limited contacts with program families in selected areas indicates favorable acceptance of the program by participating families. To gain participation of many of these families and to establish communication through the aide constitutes considerable achievement in itself.

In addition it would be recognized that the over 12,000 aides who have worked in the program have, in addition to gaining new knowledge with which to work with their program families, acquired knowledge, skills and experiences which are applicable to their own families and life style.

But let us go further and examine some of the accomplishments in respect to food and nutrition which can be measured from available program information. As you know, the primary objective of the FNEP is to help families acquire the knowledge, skills, and changed behavior to achieve more adequate diets. More specific objectives are to increase families knowledge of the needs and essentials of good nutrition and to improve their ability and practices in selecting and buying foods and preparing and serving them in nutritional and palatable meals. There are of course other objectives on which these primary goals depend and constraints which must be recognized in seeking these goals. Supportive objectives include increased participation of eligible families in USDA food assistance programs and other forms of public or private assistance which may be available.

Nutrition Knowledge of Homemaker

Assessment of the level and change of nutrition knowledge of program families is based on the family homemaker's response to the question "What food and drink do you think people should have to keep healthy?" (tables 4 and 5). The question is asked of homemakers by the aide when the family enters the program and at approximate 6-month intervals. Through March 1970, more than 215,000 homemakers had initially responded to this question. Second and third readings on this question, although representing considerably fewer homemakers, show that the percent of homemakers naming each food group as well as all four food groups increased. A separate combination of all initial readings and subsequent second and third readings irrespective of when the family entered the program shows almost 47 percent naming all four groups initially; 63 percent after being in the program 6 months; and 70 percent after 12 months. It is interesting to note that foods in the bread and cereal groups were named by a smaller proportion of the homemakers than any other food group.

Food Consumption of Homemakers

Food consumption of the homemakers is measured in a similar manner by taking a 24-hour recall of the individual foods consumed by the homemaker (tables 6 and 7). Foods named by the homemaker are listed by the aide and are then classed as a serving of the appropriate food group. No attempt is made to measure the quantity or quality of a food consumed, although certain guidelines prevent limited usage of an item being classed as a serving. Further, it is hypothesized that a family's food consumption practices will likely be superior to that of its homemaker.

Initial food readings indicate that the program homemakers do in fact have inadequate diets. Only 7 percent of homemakers joining the program during its first 3 months and 9 percent of all homemakers joining through March 1970 had at least two servings each of milk and meat and four each of fruit/vegetables and bread/cereal during a 24-hour recall period. Probably one of the greatest dietary deficiencies is reflected by the fact that around one-third of the homemakers did not report consumption of foods in the milk group. Similarly, less than one-fifth of the homemakers report at least four servings of fruits or vegetables during their initial 24-hour recall period. Slightly over a half of the homemakers reported at least one serving from each of the four major food groups. Based on initial food readings over time, it appears that as families continue to be added to the program their food practice have been slightly better than the earliest families recruited (table 6).

Table 4.--Response of Expanded Food and Nutrition Education Program family homemakers to the question: "What food and drink do you think people should have to keep healthy?" by percentage of homemakers naming foods in the four major food groups at 6-month intervals

	Time period when family entered Program			
	Through March 1969	April-September 1969	October 1969-March 1970	Food reading : reading
	Food reading	Food reading	Food reading	Food reading
	Initial : 6 months:12 months: Initial	Initial : 6 months: Initial	Initial : 6 months: Initial	Initial : 6 months: Initial
	----- <u>Number</u> -----			
Homemakers	46,055	34,633	27,479	79,953 55,995 89,445
	----- <u>Percent</u> -----			
Homemakers naming:				
Milk	66.5	81.6	84.5	70.9 80.6 71.7
Meat	70.8	83.3	86.5	76.2 84.1 78.0
Fruit and vegetables ..	70.7	84.9	87.7	75.5 84.1 76.8
Bread and cereal	57.9	74.0	77.6	61.6 72.8 62.4
All 4 groups	43.2	63.2	70.3	46.5 63.4 48.4

Table 5.--Response of Expanded Food and Nutrition Education Program family homemakers to the question: "What food and drink do you think people should have to keep healthy?" by percentage of homemakers naming foods in the four major food groups at 6-month intervals

	Time period when family entered Program		
	Through March 1970		
	Food Reading		
	Initial	6 months	12 months
	<u>Number</u>		
Homemakers	215,453	90,628	27,479
	<u>Percent</u>		
Homemakers naming:			
Milk	70.3	81.0	84.5
Meat	75.8	83.8	86.5
Fruit and vegetable ..	75.0	84.4	87.7
Bread and cereal	61.1	73.3	77.6
All 4 groups	46.6	63.3	70.3

Table 6.--Percent of Expanded Food and Nutrition Education Program family homemakers consuming food in four major food groups by number of serving, 24-hour recall period at 6-month interval

	Time period when family entered Program					
	Through March 1969		April-September 1969		October 1969-	
	Food reading		Food reading		Food reading	
	Initial	: 6 months	: 12 months	: Initial	: 6 months	: Initial
Homemakers (number)	46,055	34,633	27,479	79,953	55,955	89,455
Homemakers reporting servings (percent)						
Milk						
At least 1	65.0	77.5	82.8	68.0	79.2	69.4
2 or more	33.7	47.4	53.9	36.3	49.3	37.3
Meat						
At least 1	92.3	95.4	97.3	94.8	96.9	95.7
2 or more	71.8	78.8	84.5	74.7	80.9	77.0
Fruit and Vegetable						
At least 1	85.2	93.2	93.4	87.6	93.1	87.1
2 or more	15.4	27.8	30.6	19.3	28.1	18.2
Bread and Cereal						
At least 1	96.2	98.0	98.8	96.4	98.2	97.2
2 or more	34.1	43.3	50.2	35.6	45.7	36.7
One or more from each group	50.9	68.6	74.0	56.6	69.6	58.1
At least 2 each of milk and meat and 4 each of fruit/vegetable and bread/cereal	7.2	15.5	19.4	9.7	15.7	9.2
Average monthly income (dollars)	217	230	236	237	248	241
Average monthly food expenditure (dollars)	76	84	83	83	85	84

Table 7.--Percent of Expanded Food and Nutrition Education Program family homemakers consuming food in four major food groups by number of serving, 24-hour recall period at 6-month interval

	Time period when family entered Program		
	Through March 1970		
	Food Reading		
	Initial	6 months	12 months
Homemakers (number)	215,453	90,628	27,479
Homemakers reporting servings (percent)			
Milk			
At least 1	67.9	78.6	82.8
2 or more	36.2	48.6	53.9
Meat			
At least 1	94.6	96.3	97.3
2 or more	75.0	80.1	84.5
Fruit and Vegetable			
At least 1	86.9	93.1	93.4
2 or more	18.0	28.0	30.6
Bread and Cereal			
At least 1	96.7	98.1	98.8
2 or more	35.7	44.8	50.2
One or more from each group	56.0	69.2	74.0
At least 2 each of milk and meat and 4 each of fruit/vegetable and bread/cereal	9.0	15.6	19.4
Average monthly income (dollars) ..	234	241	236
Average monthly food expenditure (dollars)	82	85	83

Food readings taken on all homemakers who had been in the program 6 months showed almost 16 percent having the minimum adequate 2-2-4-4 diet, in contrast to 9 percent at the initial reading. After 12 months in the program, 19 percent of the homemakers were at this level. However, it should be noted that the number of homemakers for which food readings were obtained dropped sharply for the second and third food readings.

For example, for families entering the program through March 1969, slightly over 46,000 initial food recalls were obtained. For this group of families, the number of homemakers responding declined to around 35,000 at the second or 6-month reading and to 27,000 at the third or 12-month reading. The major reasons for this decline was the sizable number of families leaving the program.

In assessing achievement of homemakers entering the program through March 1970 in respect to food consumption, it should be noted that not only the percent, but the absolute number of homemakers with 2-2-4-4 diets increased after 6 months and 12 months in the program.

For those homemakers with three food readings or who have been in program 12 months, the percent reporting consumption in each of the food groups has increased and the percent consuming at least one serving in each food group rose from slightly over half to almost 75 percent of the homemakers responding. Thus, progress has been made in increasing both the incidence of "adequate" diets and getting families to include at least one serving from each of the food groups in their diets.

Comparisons of available first and second food readings of homemakers of all families and from a sample of homemakers of families entering the program through March 1969 show no significant difference in food consumption practices. While data on sample families reflect only preliminary findings, it suggests that the aggregate data provided by unit reports reasonably reflect both nutritional status and achievement of the program families (table 8).

Family Resources

In evaluating the effectiveness of the FNE Program, the indications of achievement described take on more significance when it is recognized that application of the education and skills families gain from the program may be constrained by the limited food purchasing power available to the participating families. Homemakers for which food readings were obtained between September 1969 and April 1970 reported average monthly income of around \$242 and food expenditures accounting for about 35 percent or \$84. On a weekly basis, this

Table 8.--Comparison of food consumption practices of all homemakers and a sample of homemakers of families entering FNE Program through March 1969, 24-hour recall at 6-month interval

	Food reading			
	Initial		6 months	
	All <u>1/</u>	Sample <u>2/</u>	All	Sample
Homemakers (number) ...:	46,005	2,843	34,633	2,843
Homemakers reporting servings (percent) :				
Milk :				
1 or more	65	66	78	78
2 or more	34	34	47	47
Meat :				
1 or more	92	95	95	97
2 or more	72	75	79	83
Fruit and Vegetable :				
1 or more	85	87	93	93
4 or more	15	14	28	28
Bread and Cereal :				
1 or more	96	98	98	99
4 or more	34	37	43	49

1/ Based on periodic unit reports on all homemakers for which a food reading was taken.

2/ Preliminary data obtained from individual records of a representative sample of families of which 2,843 had both initial and 6-month food readings.

would reflect an average weekly expenditure of between \$19 and \$20. The Department estimated that in June 1970 the cost of its low-cost food plan for a family of four with school children was \$31.10 per week. Since the average size of a program family is around 4.8 persons, available income and specifically that available for food, places a definite constraint on these families in acquiring the food necessary for an adequate diet.

To give families access to more food or more resources for acquiring their food needs, program families that are eligible are encouraged to participate in USDA food assistance programs. In the early months of the program, the proportion of FNEP families participating in USDA food programs remained fairly stable at around 34 percent but has since gradually increased until almost 45 percent of the families participated in either food stamps or donated foods in September 1970 (table 9). During 1970, participation of FNEP families in USDA food assistance programs has undoubtedly been encouraged by greater availability of these programs and particularly more liberal purchase requirements for food stamps.

Traditionally the participation rate of eligible families in the Food Stamp Program has been lower than in Donated Food Programs. But in June 1970, for the first time, the proportion of FNE families participating in food stamps exceeded that for donated foods, reflecting the increased availability of food stamps. By States, there is wide variation in the percent of FNE families participating in a USDA food assistance program, ranging from a high of over 80 percent to a low of less than 25 percent. Participation in USDA food assistance among FNE families continues to be highest in States where the principal program is donated foods, despite liberalization of the Food Stamp Program. Less than 1 percent of FNE families lived in areas where either Food Stamp or Donated Food Programs were not available.

Operational Characteristics of the Program

At the end of September 1970, a full-time equivalent aide was responsible for an average of 48 program families. Among the States there was sharp variation, ranging from a high of 118 families to a low of 18. In about two-fifths of the States, the average number of program families per full-time equivalent aide was between 30 and 35.

Another measure of aide workload is the number of families visited during the month. Programwide, a full-time equivalent aide visited 50 families at least one time during September. A major portion of this workload was accounted for by visits to an average of 39 program families during the month. An average

Table 9.--Percent of Expanded Food and Nutrition Education Program families participating in USDA food assistance programs by months

Month	Food Stamp	Donated Foods	Total	Not available
1969				
February	15.0	26.8	41.8	4.1
March	12.4	22.3	34.7	7.8
April	12.8	21.5	34.3	5.6
May	13.3	21.5	34.8	3.5
June	13.1	20.5	33.6	3.1
July	14.9	22.4	37.3	2.6
August	14.6	22.3	36.9	2.5
September	15.2	22.7	37.9	2.4
October	15.6	22.6	38.2	2.0
November	15.6	22.6	38.2	2.5
December	15.8	22.2	38.0	2.7
1970				
January	15.9	22.3	38.2	1.6
February	16.9	22.6	39.5	2.1
March	18.4	23.0	41.4	1.7
April	19.0	22.6	41.6	0.8
May	20.3	22.4	42.7	0.8
June	21.3	21.6	42.9	0.7
July	22.8	20.5	43.3	0.6
August	23.2	20.5	43.7	0.9
September	24.2	20.6	44.8	0.4

UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR FOOD PRICES, CONSUMPTION, AND EXPENDITURES

Statement by Hazen F. Gale
Economic and Statistical Analysis Division
for the 1971 National Agricultural Outlook Conference
Washington, D.C.

Summary

Food prices probably will increase much less this year than in 1970. Prices will move up through the first 3 quarters of the year, reflecting some inflationary pressures as well as seasonal influences. However, they will likely level off late in 1971 as seasonally large supplies of food come on the market. The food price index, including food at home and away from home, could average 2 to 3 percent higher in 1971. Grocery store prices may rise only 1 to 2 percent compared with a 5 percent boost last year. Prices in eating places will continue upward but less than the 7-1/2 percent increase in 1970.

Retail store prices may average lower than in 1970 for pork, eggs, poultry, potatoes, and some vegetables. Higher prices are indicated for fish, dairy products, cereal products, sugar, and processed vegetables.

Marketing charges will average higher in 1971, but the rise may fall short of the unusual 7 percent increase in 1970. However, lower farm prices of food products probably will offset part of the wider margin. Farm prices were $\frac{1}{2}$ percent higher in 1970 than in 1969.

Another 1 percent boost in per capita food consumption is forecast for 1971, with animal products again providing a major part of the increase. Per capita consumption will likely increase for pork, cheese, turkeys, and some processed fruits and vegetables. Lower consumption is in prospect for veal, lamb, and some dairy products.

Consumer expenditures for food will likely rise more slowly than in 1970. The effect of gains in economic activity, population, food consumption, and disposable incomes will be tempered by smaller increases in prices.

As the rise in food spending moderates and income continues to rise, the proportion of disposable income spent by consumers for food may resume the downward trend of the past decade. It averaged 16.7 percent in 1970, the same as in 1969, but below the 20 percent of 1960.

Food Prices, Consumption, And Expenditures

Retail Food Prices

The food price index rose 5-1/2 percent last year, the largest increase since 1951. However, the large jump in the annual average conceals other important developments.

The food-at-home component of the index rose 5 percent while prices of food eaten away from home, which accounts for a fifth of all food, went up 7-1/2 percent. Sharp increases in this component were evident in each of the first 3 quarters of the year as prices averaged 7-1/2 to 8 percent above the same periods of 1969. Although the rate of increase eased some in the fourth quarter, prices of restaurant meals were still more than 6 percent higher than in the fourth quarter of 1969. These sharp advances reflect sharply higher wages and other operating costs as well as 3-1/2 percent higher wholesale prices of food.

Prices for food bought in grocery stores, although 5 percent higher for the year, were relatively steady after the first quarter. They started off the year nearly 7-1/2 percent above the first quarter of 1969, but as the year progressed the rate of advance became smaller until prices reached a seasonal peak in the third quarter. A 1 percent seasonal decline in the fourth quarter left retail store prices about the same as in the first quarter and 2-1/2 percent higher than in the fourth quarter of 1969.

A 7 percent boost in marketing charges accounted for most of last year's increase in retail food prices. Prices of the farm products used for food averaged only slightly higher than in 1969 and contributed little to the overall increase. Sharply higher prices of fish and coffee, both nonfarm foods, also contributed to the higher retail prices of food.

The small change in farm prices covers up the wide variation during 1969 and 1970 (figure 1). There was a 17 percent increase between the end of 1968 and the first quarter of 1970. Then prices fell just about as fast during the rest of 1970 and the fourth quarter average was nearly the same as in early 1969. However, they still were more than 15 percent above the levels of a decade ago.

The sharp decline in farm prices after the first quarter of 1970 was accompanied by an unusually large increase in the marketing margin. This large jump reflects higher wages and costs of other goods and services bought by marketing firms and overcame the smaller gains in the margin registered in 1969 when farm prices were rising so quickly. Thus, inflationary pressures in the economy, which were mainly responsible for the boost in marketing costs, overshadowed the effect of an increase in food supplies, a major factor in the farm price decline.

The fourth quarter drop in food prices was in contrast to the continued rise for many other goods and services (figure 2).

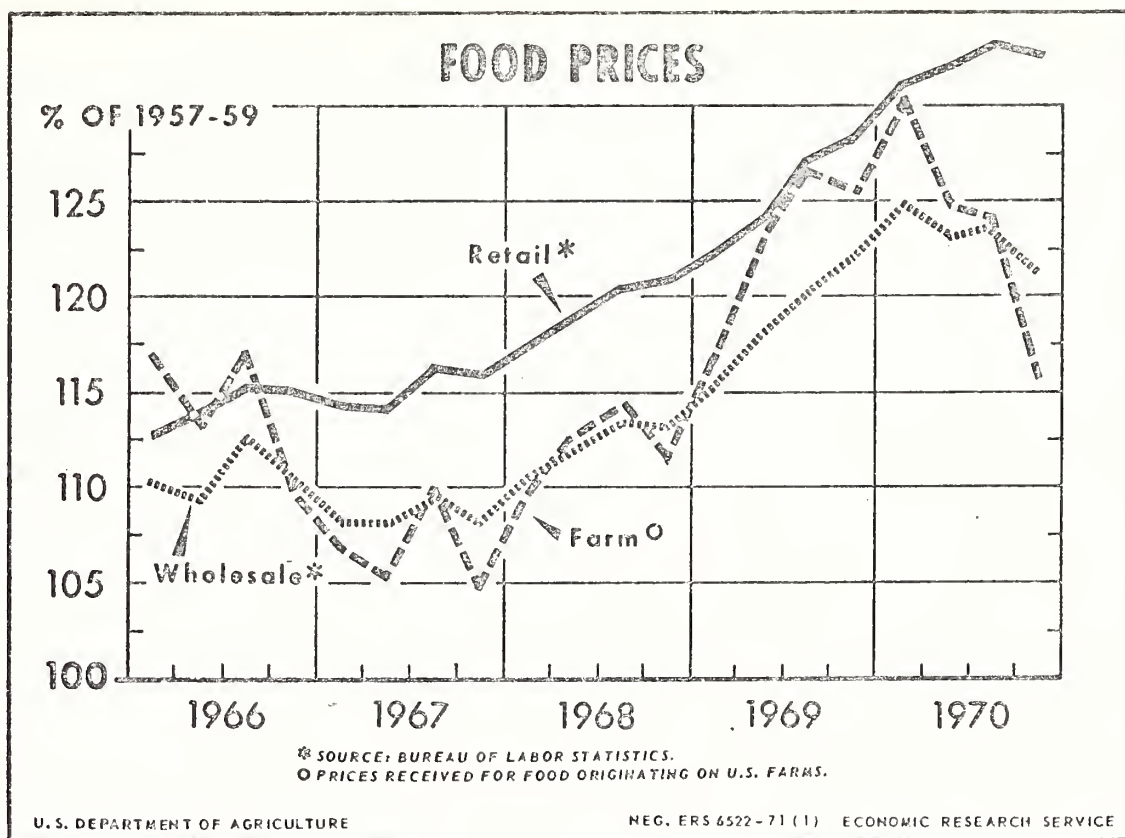


Figure 1

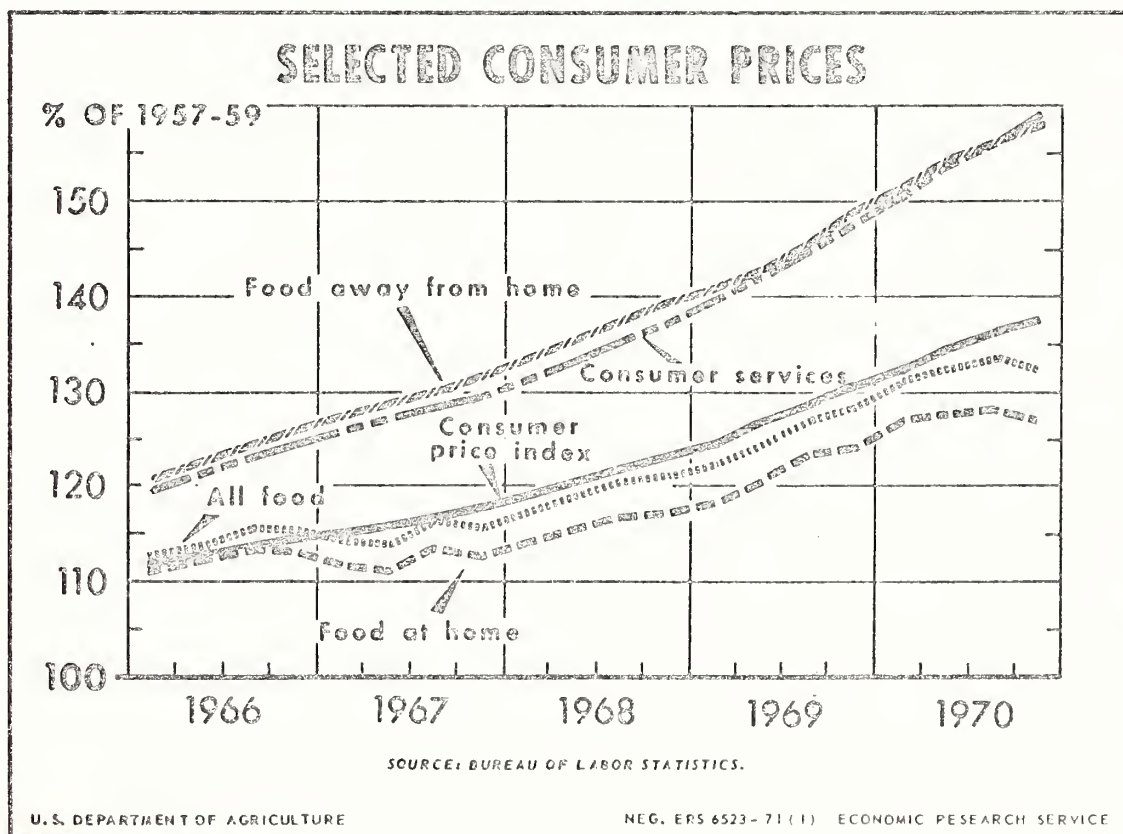


Figure 2



The higher 1970 store prices of food reflected increases for all major product groups except eggs and poultry, which decreased only slightly. Increases among individual foods covered a wide range, with coffee (20 percent), fresh potatoes (10 percent), fats and oils (10 percent), and fish (10 percent) leading the way. Although pork prices averaged more than 6 percent higher for the year, they were almost 10 percent lower in December last year than in the same month a year earlier. Meanwhile, the equivalent price of hogs went down 40 percent, so the spread between farm and retail prices increased from 32 cents per retail pound in December 1969 to 41 cents at the end of 1970. Retail egg prices also dropped dramatically during 1970; large grade A eggs were selling for 59 cents a dozen in December compared with 78 cents a year earlier.

Grocery store prices of food may average 1 to 2 percent higher in 1971, a sharp reduction from the 5 percent increase in 1970. However, food eaten away from home will again cost substantially more in 1971, but hopefully the rise will be less than the 7-1/2 percent jump last year. As a result, the 1971 total food price index will likely be up 2 or 3 percent.

Lower average prices are expected for pork, poultry, eggs, potatoes, and some fresh vegetables. Higher prices are indicated for fish, dairy products, cereal products, sugar, and processed vegetables.

Prices likely will move up through the first 3 quarters of the year, reflecting inflationary pressures as well as the normal seasonal increases in the late spring and summer months. Prices may level off or decline in the fourth quarter as seasonally large supplies of food come on the market.

Lower average farm prices are in prospect for 1971, but these will not offset higher marketing charges which will increase at a slower pace than last year.

Per Capita Food Consumption

Per capita consumption of food rose nearly 1 percent last year with animal products accounting for much of the advance (figure 3). Gains were recorded for meat, poultry, fish, vegetable oils, processed potatoes, and sugar and sweeteners. Egg consumption in 1970 was nearly the same as in 1969. Consumption declined for dairy products, animal fats, fresh potatoes, cereal products, and coffee. Larger consumption of fresh vegetables did not quite counterbalance a decline--the first since 1959--for processed vegetables. A slight increase for fresh fruits and a larger one for processed brought all fruit consumption up 1 percent over 1969.

Red meat consumption rose to a record 185.5 pounds (carcass equivalent) in 1970, 3-1/2 pounds more than in 1969. Beef consumption totaled 113.4 pounds, a new record and up a third from a decade ago.

Livestock consumption reached a seasonal low in the first quarter, near the level of the same quarter in 1969. It then increased rapidly and by the fourth quarter was 2 percent higher than a year earlier (figure 4).

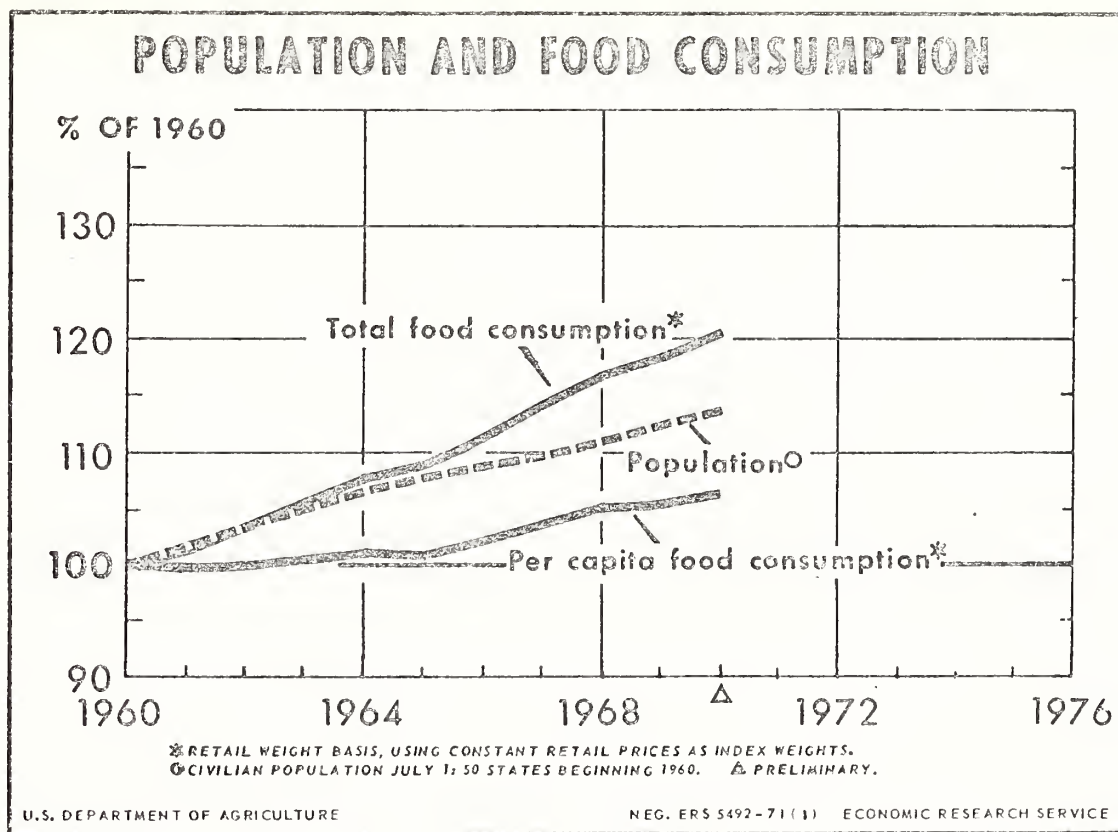


Figure 3

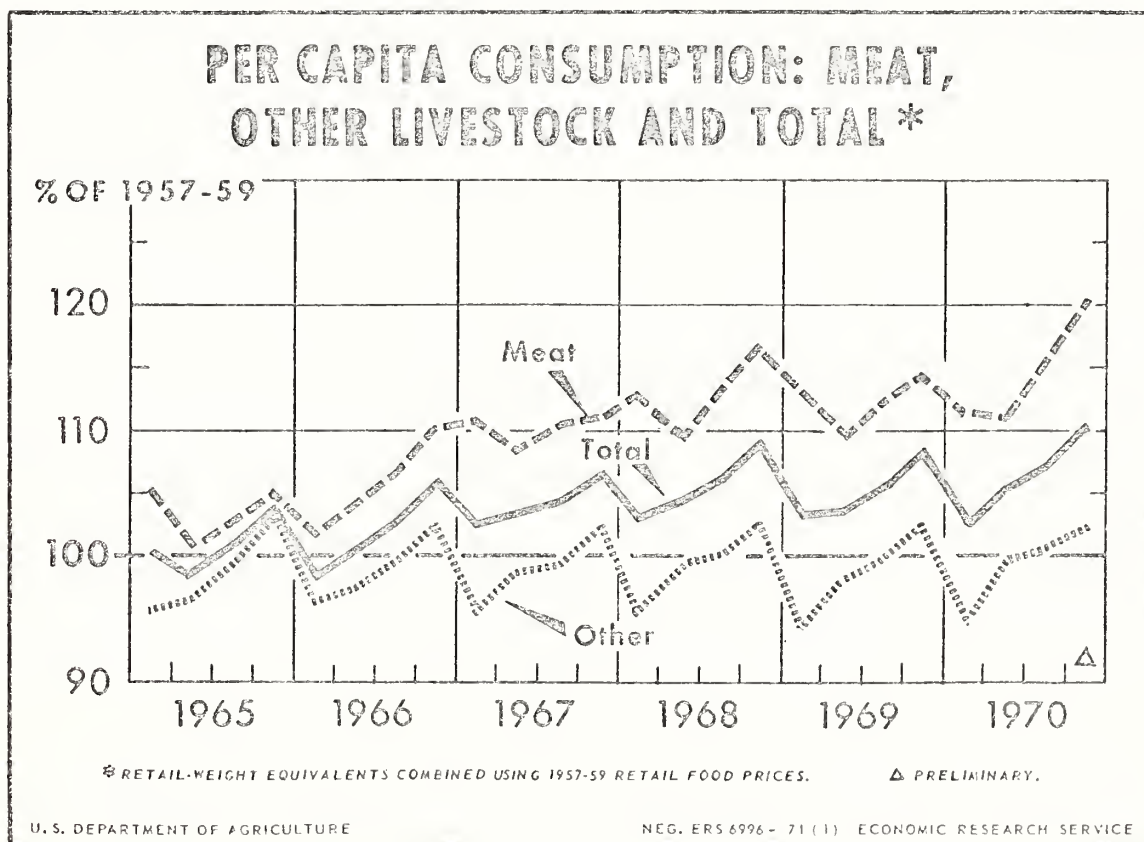


Figure 4

Most of the quarterly increases for livestock products came from larger consumption of meat and poultry as both reached new highs at the end of the year. Dairy product consumption was lower than a year earlier in each of the last 3 quarters. Butter and lard consumption continued to decline at a substantial rate.

For 1971, per capita food consumption may increase another 1 percent, continuing the string of increases since 1965. Animal products will be the major source of the increase again this year, and consumption of crop products is expected to increase also. During the first half of the year consumption of livestock products will likely be higher than in the same period of 1970, largely because of greater pork consumption. By the end of the year, however, per capita consumption of all livestock products may be near year-earlier levels.

The 1970-71 citrus crop suffered some freeze damage in late January, but prospective output is still large with both oranges and grapefruit crops up more than a tenth from last season.

Winter production of fresh vegetables had been running higher and prices lower than a year ago. However, the freeze in Florida temporarily reduced crop prospects in several areas, particularly for tender items like pepper and tomatoes. Prices of these may rise closer to last winter's levels. Cabbage and celery are in larger supply. Potato supplies are heavy and prices relatively low because of large storage stocks from the 1970 fall crop; winter potato production is running moderately below last year. Planting intentions indicate slightly more acreage for the spring than in 1970, and a little less for the early summer crop.

Canned and frozen vegetable supplies for the 1970-71 season are running moderately less than a year earlier. The slightly larger canned pack was more than offset by a sharply reduced carryover.

Food Spending And Income

Expenditures for food in 1970 totaled about \$114 billion, 8-1/2 percent more than in 1969 and the largest increase in nearly 2 decades. Higher prices accounted for most of the increase so expenditures adjusted for price changes rose only about 3 percent, reflecting higher consumption rates and a larger population. Expenditures for food at home and away from home each increased about the same, but after adjustment for the rise in prices they went up 3.3 and 1.1 percent respectively.

Food expenditures (seasonally adjusted, annual rate) jumped 3.3 percent in the first quarter of 1970. The rate of expansion got smaller (1.8 and .8 percent) in the second and third quarters, but it picked up slightly in the fourth quarter as larger supplies of food products together with slightly higher prices (seasonally adjusted) boosted total expenditures 1.7 percent to a level nearly 8 percent above the same quarter in 1969.

Disposable income also increased substantially in 1970, averaging \$685 billion, nearly 8-1/2 percent above 1969. There was an \$18 billion increase in the second quarter and only a \$4 billion increase in the fourth quarter.

As economic activity picks up during 1971, disposable income will rise from the low rate of advance in the fourth quarter, and together with population increases, and larger government expenditures on food stamps and other food programs, will contribute to continuing strong demand for food. Larger food supplies may dampen the expansionary effects, so food spending likely will increase at a slower rate in 1971 than in 1970.

The proportion of disposable income going for food expenditures held steady at 16.7 percent in 1969 and 1970, but the downward trend probably will resume in 1971. It was 20 percent a decade ago.

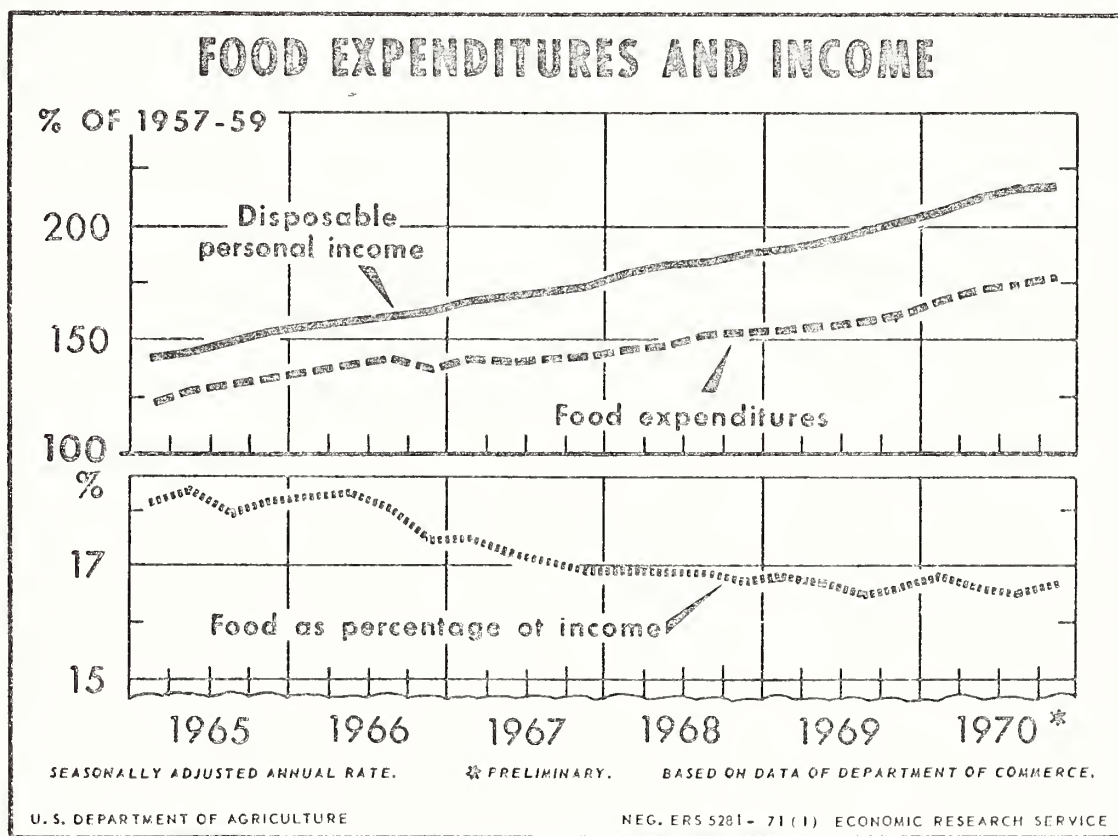
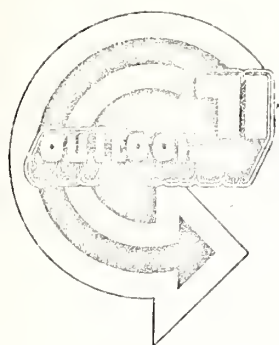


Figure 5



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UNITED STATES DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE

OUTLOOK FOR OILSEEDS, FATS AND OILS

Talk by George W. Kromer
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 2:15 P.M., Wednesday, February 24, 1971

Soybean supplies for the current marketing year are estimated at 1,366 million bushels, about 6% below 1969/70. This is the first decline since 1963. The 1970 soybean crop--at a record 1,136 million bushels--was a shade above 1969. But carryover stocks last September were down sharply--to 230 million bushels compared with 324 million on September 1, 1969.

Sustained strong demand for soybeans and products is carrying soybean utilization to a new high this marketing year. A rise of around 6% is likely from last year's record to about 1.3 billion bushels. This increase is modest (75 million bushels) in comparison with the 1969/70 record gain of nearly 30% (275 million bushels). Nevertheless, use will exceed output, resulting in another sharp drawdown in stocks--possibly to around 65-75 million bushels by next September 1.

Soybean Usage Exceeding Production

The current marketing year is the second consecutive year in which soybean utilization is exceeding production by a wide margin. In 1969 producers planted 42 million acres, but the equivalent acreage that would have balanced soybean usage in 1969/70 was about 46 million. Approximately 43 million acres were planted for the 1970 soybean crop. But the record disappearance of soybeans this year (1.3 billion bushels) is equivalent to the production from 49-50 million planted acres. And, with carryover stocks by September 1, 1971, worked down to minimum operating levels, soybean demands in 1971/72 will have to be met from 1971 crop production.

The long-run annual growth rate in soybean utilization has been around 8% per year. The rate of gain was a spectacular 30% during 1969/70. But this year the growth rate will fall to around 6%--reflecting limited soybean supplies and sharply higher prices. Significant future increases in both acreage and yields per acre are necessary if the soybean industry is to maintain its past growth pattern.

Intentions Show a Prospective 7% Soybean Acreage Increase in 1971

Based on a special USDA January 1 planting intentions survey, farmers will seed a record 46 million acres to soybeans in 1971, 7% above last year. Increases are indicated for all major producing regions.

If intentions are realized and yields are average, the 1971 soybean crop will exceed 1.2 billion bushels, compared with 1,136 million bushels in 1970. However, a crop this size would fall short of even maintaining the current marketing year's prospective usage of 1.3 billion bushels. The soybean outlook based on the intentions survey is for a continuing tight soybean situation in 1971/72 and relatively high price levels. Price support for 1971-crop soybeans continues at \$2.25 per bushel.

On February 11, USDA announced 1971-crop set-asides of 20% for feed grain and upland cotton and 75% for wheat. These set-aside percentages are the same as those announced tentatively last December 8. In 1971, acreage planted to soybeans will not be considered planted to wheat, feed grain, or cotton.

Between now and planting time, farmers' intentions will be influenced by such important factors as weather, soybean and corn prices, and the availability of blight resistant corn seed. Some further acreage shift to soybeans seems highly probable due mainly to very strong soybean prices. The regular spring planting intentions report will be released March 16. This important report should be evaluated carefully as the prospective acreage will have price implications for the entire soybean complex for the following year or so.

Alternative Crops Allowed on 1971 Set-Aside Acreage

Eight alternate crops may be grown in 1971 on acreage set aside from the production of cotton, feed grain and wheat under provisions of the Agricultural Act of 1970. They are guar, sunflower, sesame, castorbeans, mustard seed, safflower, crambe, and plantago ovato. There will be a \$10 per acre reduction in the payment due participating farms which plant any of the eight allowable crops on set-aside acreage. Cotton, feed grain, and wheat producers who wish to qualify for program benefits must sign up to participate during the period March 1 through April 9, 1971.

The planting of alternative crops on set-aside acreage likely will increase slightly the domestic supplies of edible vegetable oils in 1971/72--particularly safflower and sunflower seed oils.

1970-Crop Soybean Prices Up Sharply

Reduced soybean supplies in 1970/71 and continuing strong demand have boosted farm prices some 20% above the previous season. Prices received by farmers advanced from \$2.66 per bushel in September 1970 to \$2.86 in January 1971, averaging about \$2.80 compared with \$2.30 in the same months of 1969/70. Prices likely will continue strong throughout the season, averaging sharply above 1970 levels. They will be influenced by prospects for the 1971 soybean crop.

Soybean Processing Capacity Rising; Margins Average Slightly Lower

U.S. soybean processing industry continues to anticipate the expanding output of soybeans and the growing markets for soybean oil and meal. During the past decade, annual capacity increased from around 500 million bushels in 1960 to approximately 800 million in 1969--a total gain of 60%.

Industry's soybean processing capacity continues to rise this season and is currently estimated around 850 million bushels (annual rate). During the spring it may approach 900 million bushels. Crushers in the first half of the current marketing year probably were operating near capacity levels because of good product demand and favorable processing margins. There has been some easing of the strain on soybean processing facilities recently. And later this year as the crushing rate declines seasonally, the capacity will continue to increase.

Soybean crushings during September-January 1970/71 totaled around 322 million bushels, 8% above this same period a year ago. This averages to a record 64 million bushels per month, compared with 59 million last year. Crushings for the entire season are expected to total around 775 million bushels, up from the record 737 million of 1969/70.

Processing margins this season, though not as favorable as last year, are well above those of recent years. During September-January, they averaged 38¢ per bushel (based on spot prices for soybeans, oil and meal at Decatur) compared with 52¢ for the same period a year ago. Monthly processing margins have declined from near 50¢ per bushel last September to 25¢ in January. This reflects the sharp increase in crushing capacity along with limited supplies of soybeans and higher bean prices. Generally, favorable margins encourage increased crushings, especially when they are attractive in the first part of the season.

During the 1969/70 marketing year processing margins averaged about 50¢ per bushel. That was an exceptional year, however, because the average margin during the past decade was about 16¢ per bushel.

Soybean Exports Up Slightly

Soybean exports during 1970/71 may total around 450 million bushels, about 5% above last season's record 429 million. U.S. soybeans are filling the growing world demand for edible oils and high-protein concentrates and supplementing current inadequate export supplies of competing oilseeds--such as peanuts, copra, and sunflower seed--used primarily in Western Europe and Japan. From September 1 through February 12, about 206 million bushels of soybeans were inspected for export, compared with 201 million a year ago. Many foreign buyers may keep taking soybeans fairly steadily throughout the year, anticipating the small U.S. carryover next September 1 and realizing that export availabilities of competing foreign oilseeds cannot increase substantially before the end of 1971.

The export total will depend largely upon several important factors, the effects of which cannot yet be fully weighed--in particular, the volume of Soviet Bloc exports of sunflower seed and oil during 1971, the quantity of rapeseed that Canada is able to move into export, and the volumes of African peanut oil and meal and Indian peanut meal and Peruvian fish meal which will enter world markets. The level of livestock and poultry production in foreign countries also will be a significant determinant. Expanding meat and chicken production in many parts of the world is increasing the demand for high-protein feeds, and soybeans are providing a large share of this additional need. This factor, coupled with increasing expansion of oilseed processing capacity abroad, is a promising export prospect.

Soybean Oil Supplies Increase; Exports Up

Soybean oil supplies for the marketing year ending September 30, 1971, are estimated at 8.8 billion pounds, about 6% above 1969/70.

Domestic use of soybean oil is estimated at 6.5 billion pounds. This would be up about 3%, in contrast to the 10% gain of last season. Larger lard and peanut oil supplies will limit the increase in soybean oil use this season. Domestic disappearance during October-December totaled about the same as last year's record 1.6 billion pounds, but slightly increased expansion from year-ago levels is expected.

Soybean oil exports and shipments in 1970/71, after a disappointing start, are estimated at around 1.6 billion pounds, about a tenth above the previous year. The increase will stem from the relatively favorable competitive price position of U.S. soybean oil and also consumption and to replenish stocks, which will not be fully met by competing commodities such as peanut, sunflower, and coconut oils. The bulk of these exports likely will move out under P.L. 480 and for barter sales. Some pickup in commercial dollar sales is expected, as lower prices make soybean oil increasingly attractive. During October-December, exports totaled 362 million pounds, compared with 279 million a year ago.

Soybean oil export volume will be influenced by the export availabilities of foreign oilseeds and oils, particularly Russian sunflower oil and African peanut oil. Also, the actual level of U.S. soybeans exported and crushed overseas will influence soybean oil movement by affecting the world supply of vegetable oils.

Soybean Oil Stocks Increase But Are Not Burdensome

Soybean oil stocks (crude and refined) increased steadily from 543 million pounds last October to 764 million pounds this January. Oil stocks usually increase seasonally during the heavy fall-winter crushing period. Last year, they rose from 415 million pounds in October to a seasonal peak of 713 million on June 1, 1970. Soybean oil stocks probably will increase further this marketing year before they start to decline seasonally. Carryover next October 1 is now estimated at around 750 million pounds, about 200 million more than on October 1, 1970.

While soybean oil stocks as such probably will be greater next fall, the total carryover (including soybeans on an oil equivalent basis) will be down sharply. Last September 1 the soybean oil equivalent carryover was 3.2 billion pounds--composed of 0.7 billion pounds of crude and refined oil plus the 2.5 billion pounds oil equivalent of 230 million bushels of soybeans. Next September 1 when soybean stocks will be down to low operating levels, the soybean oil equivalent carryover may be around $1\frac{1}{2}$ billion pounds--about 50% less than last year. Obviously, the trade is willing to carry larger oil inventories this year as CCC will be out of soybeans before the next marketing year and commercial soybean stocks will be near a minimum. Also, the prime interest rates are lower this year than last.

Last year CCC had sold about 70 million bushels of soybeans for September 1970 delivery and this enabled the trade to bridge the gap between old-crop and new-crop availabilities. Such reserve supplies of soybeans will not be available next fall.

Soybean oil prices (crude, Decatur) declined from 14¢ per pound in October to 12¢ in mid-February, averaging 13¢ for the period--about 3¢ above the year earlier level. Prices may have passed their peak for the season but for the balance of this year likely will remain strong. An important factor will be the volume of soybean oil exported. Later in the season, prices will be affected by 1971 soybean crop conditions as well as by new-crop production prospects for foreign oilseeds.

Soybean Meal Production and Use Up Slightly

Soybean meal supplies in 1970/71 are estimated at over 18 million tons, about 4% above a year ago. Domestic disappearance will likely rise about 4% to around 14 million tons. This is a modest increase compared with last season's rise of nearly a fifth. Factors generating expansion this year are the slight increase in the number of high-protein consuming animal units, smaller cottonseed meal supplies, and the favorable price of soybean meal in relation to feed grains. Also, the uncertain situation regarding corn supplies, due to Southern blight, could increase the use of soybean meal. However, this also could be an offsetting factor, as producers trim herd and flock numbers in response to high feed grain prices. Already, Corn Belt hog producers have indicated plans to cut back the number of sows farrowing in the March-May period, and broiler producers have curtailed expansion. Both of these industries are large users of soybean meal. During October-December, domestic use of soybean meal totaled 3.7 million tons, 9% above this same period a year ago.

Exports of soybean meal in 1970/71 may approximate the previous year's 4 million tons. Movement during October-December at 1.1 million tons was exactly the same as in 1969. The 1969/70 season's total increase was about 1 million tons. Larger world supplies of competing commodities--chiefly fish, rapeseed, and linseed meals--are expected to limit soybean meal gains, especially in the latter part of the current year. Factors which indicate a continuing good foreign demand for soybean meal include an increase in world meat production, particularly poultry, which depends heavily upon soybean meal; the relatively attractive price of U.S. soybean meal; and the possibility of increased use of

high-protein feeds, resulting from dislocations in feed grain supplies and higher prices caused by the Southern corn blight. However, there may be some turndown in foreign livestock and poultry production in late calendar 1971.

Soybean meal prices (44% protein, bulk, Decatur) during October-mid-February averaged \$79 per ton, about the same as last season. Although prices are expected to be more stable than last year, for the entire 1970/71 season they probably will approximate last season's average of \$78 per ton.

Cottonseed Crop Slightly Larger

The 1970 cottonseed crop, at 4.3 million tons, is about 2% above 1969. Cottonseed prices are strong, reflecting the good demand for oilseed products. The season average price received by farmers was \$56 per ton, up from the \$41 of the previous year and the current support rate of \$37.

The Agricultural Act of 1970 does not require a cottonseed price support program in line with soybean support. Previous law required cottonseed and soybeans to be supported at levels that would enable them to compete on equal terms in the market. In late January, USDA said it does not plan to announce a support program for 1971-crop cottonseed. There was no support activity under either the 1969 or 1970 cottonseed program as market prices were above the support levels. A continuing upward trend in the demand for U.S. vegetable oils and protein meals is expected and should enhance the market situation for cottonseed and its products.

Oil Exports and Domestic Use Slip

Despite the slightly larger cottonseed crop, cottonseed oil supplies this season are smaller--about 1.5 billion pounds compared with 1.7 billion last year. Smaller starting stocks account for the decrease.

Smaller supplies and higher prices are limiting cottonseed oil use this season. Domestic disappearance may total about 1 billion pounds, down slightly from the 1.1 billion of 1969/70. This season's exports are estimated around 300 million pounds, down from the 437 million of last year when CCC export sales were large.

Cottonseed oil prices (crude, Valley) have increased steadily from 12 $\frac{1}{2}$ ¢ per pound last September to 16¢ through mid-February. Prices so far this marketing year have averaged 14¢ per pound, 3 $\frac{1}{2}$ ¢ above the comparable period a year earlier. These prices reflect the smaller cottonseed oil supplies and the firm price structure which has prevailed in the edible oil markets for about the past year. Prices likely will continue strong the rest of the marketing year.

Lard Output Increasing

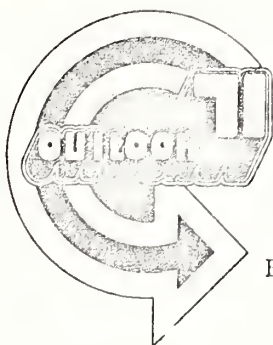
Lard production for the 1970/71 marketing year that began October 1 is estimated at 2 billion pounds, about 200 million pounds above the previous year. The gain will stem from larger hog slaughter--now underway and expected to

continue into next fall. This probably will more than offset a further slight decline in lard yield per hog.

With larger supplies available at more competitive prices, domestic use is expected to increase from the 1.4 billion pounds of last season to around 1.6 billion pounds. Most of this increase likely will go into shortening and margarine manufacture. Direct use of lard, at best, may hold near last season's level.

Exports and shipments likely will be up slightly from the 400 million-pound-level of 1969/70. However, the volume will be influenced by competition from increased foreign supplies--particularly Western Europe--and also by the USDA export payment program. About two-thirds of total exports go to the United Kingdom--the major overseas market for U.S. lard. Lard from the European Community also competes for this market. In January 1969, USDA initiated the payment program so that U.S. lard could compete with subsidized lard from the Continent. So far this marketing year, about 155 million pounds have been accepted, compared with about 102 million a year ago. Since August 1969, the payment rate has been 1¢ a pound. Lard exports and shipments during October-December 1970 totaled 116 million pounds compared with 103 million pounds in the same quarter of 1969.

Lard prices (tanks, loose, Chicago) from October through mid-February averaged 11½¢ per pound, about the same as a year earlier. Lard prices this marketing year are averaging a little below soybean oil; in 1969/70 lard prices were slightly above soybean oil. When competitive with soybean oil, sizable quantities of lard are used in the manufacture of shortening compounds.



UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

EMERGING PRODUCT INROADS INTO AGRICULTURE:
SYNTHETICS AND SUBSTITUTES

Talk prepared by
William T. Manley
and

William W. Gallimore

Marketing Economics Division

at the 1971 National Agricultural Outlook Conference
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There is increasing concern about the ability of the world's population to feed and clothe itself. In many countries the food and fiber supply will not provide for increasing populations at levels of living approaching those in this country. But here there are no prospects for a shortage of food and fiber in the immediate future. However, now as in the past, we are searching for new sources and ways to meet our needs. Generally, we have relied on the opening of new lands and improvements in the technology of production, processing, and marketing to supply our needs. Yet, we have increasingly turned to substitute products. And, a continuing search for substitutes that are better because they are less expensive or possess qualities superior to existing products can be accepted as inevitable.

Over time, the search for substitutions has evolved and expanded along with advancing levels of scientific and technical sophistication. Even direct substitution of basically similar products, the oldest and most familiar form of substitution, would be relatively limited without studious endeavors responsible for the introduction of new varieties and breeds of plants and animals. As fruits of these efforts have emerged, some have substituted for and displaced previously acceptable existing products. For example, certain apple varieties popular a century ago are virtually unknown to consumers today. New breeds of livestock and poultry have substantially revised meat supply options, particularly over the late history of the meat industry.

The discovery of techniques for processing foods and fibers further extended the possibilities for substitution. Canning, introduced in the Napoleonic era, resulted in a new form of food that could be substituted for fresh or dried products, e.g., canned for fresh or dried peaches. More recently,

new processing methods have resulted in substantial substitution of vegetable fats and oils for animal fats, including butter. From 1960-69 the per capita consumption index for animal fats decreased from 92 to 72, while the index for vegetable fat increased from 106 to 145. Perfection of product quality control and the advent of household refrigeration facilities have paved the way for the substitution of frozen foods for both canned and fresh products. Current and developing techniques such as freeze drying and irradiation will probably continue to furnish new substitutes. Nonetheless, possibilities for such substitutes are relatively constrained because of dependence upon preservation of the same basic product form.

Synthesizing techniques are removing these barriers to substitution and are becoming an important part of the continuing search for new products. This process allows raw materials for the end products to come from a number of sources. The source materials may be from plants and animals all agriculturally based or from materials usually not considered to be agriculturally related. For this reason, synthetic substitutes have important implications for future adjustments in agriculture.

The urgent concern today is that more ingredients for the growing assortment of synthesized substitutes are derived from sources either outside agriculture or from sources within agriculture quite different from traditional sources. The fact that many of the new products are fabricated from a number rather than a single ingredient source further complicates matters.

In the Marketing Economics Division of ERS, research is now underway to estimate the market penetration by agricultural substitutes in the next 10 years and to evaluate their impact on agriculture. 1/ However, because the analysis requires further refinement, assessment of penetrations and impacts for now will be tentative.

Economic Basis for Substitution

Possibilities for substituting inputs in production and products in consumption provide much of the analytical essence of the nature of supply and

1/ The research is being conducted by a Division task force with membership and areas of interest as follows: William W. Gallimore, Leader; Allen J. Baker, livestock; Roy A. Ballinger, sugar; Kermit M. Bird, protein; John R. Brooker, citrus; Herbert H. Moede, dairy; and John E. Ross, cotton.

demand. Consequently, it is only within the supply-demand framework that meaningful determinations can be made about the economic consequences of the expanding capability for devising new substitutes.

On the supply side, substitution growing out of direct trade-offs among a changing mix of primary agricultural products or exchanges for processed versions of these products will influence mostly the alignment of resources primarily identified with agriculture. In contrast, synthetic substitutes derived from nonagricultural sources or perhaps from agricultural sources as well, will affect the arrangement of resource utilization, both within and outside of agriculture. The more successful synthesized products of nonagricultural origin are at substituting for agricultural products, the more severe the necessary resource adjustments in agriculture are likely to be.

However, just because a new product has been developed is no assurance that it will be used. If there is no demand for the product at prices for which it can be produced, it will not be drawn into the system. Potential users of the product will not be interested in buying a substitute product unless it is lower in cost, provides more convenience, adds functionality, or is higher in quality.

Between the supply side and the demand side stands a group of marketing innovators. These are firms or individuals who see both the products and the need and their relation to each other. They see the supply and demand. They also foresee their own useful role in bringing the two economic forces together in such a way that they themselves may profit or gain a share in the market.

While the economics of supply and demand may be favorable to the introduction of certain substitutes, constraints imposed by the institutional and legal environment can cloud the future potential of many such products. At present, a major area of uncertainty concerning product acceptance is that of labeling and standards of identity. This is not only receiving a great deal of attention for food items that are fabricated from a number of components but is also becoming a more important consideration in the development of any new product. Additives for preserving color and freshness are receiving close scrutiny.

Beyond these considerations, conclusions concerning the future for substitutes need to be tempered by knowledge that market shares of new products frequently fail to sustain a vigorous rate of growth. Not atypically, the rate of growth is quite rapid in the initial stage, levels off and in some instances later declines. Substitutes for cotton are approaching the leveling-off stage, and this is probably also true for citrus products. Many dairy and most meat substitutes, however, are still in the initial growth stage.

Technically, the matter of estimating the impacts of emerging substitutes is less complicated if the major source for the substitute is from outside agriculture. In this case, the need is largely confined to looking at changes in demand for the product replaced and tracing through the system for the effect of these demand changes. For example, the effect of a powdered synthetic orange drink on the citrus industry can be analyzed in a comparatively straightforward manner by examining resulting changes in the demand for orange, grapefruit, and other citrus products.

If the problem is to analyze the effect of a substitute whose primary source material is within agriculture, however, a look needs to be taken not only at the demand changes but also at a host of other relationships. This more complex problem is evident in an analysis of the possible effects of growth in the production of meat analogs from vegetable protein. If soy protein is used, the problem is compounded because of the joint relationship between soybean oil and meal, and the competition for the meal for use as food for humans or animals.

With this brief background, the current and prospective market position of substitutes will be reviewed for a number of commodities.

Textiles

In the past 5 years there has been a dramatic increase in the use of synthetic fibers. In 1959 rayon and/or acetate fibers accounted for 20 percent of the broad woven goods, while other synthetic fibers accounted for 7 percent. This proportion held fairly constant through 1964, but by 1969, 45 percent of total domestic consumption of broad woven goods was classified as manmade fabric or made with synthetic fibers. During this period, fabric blends of polyester with cotton began to increase in volume. In the meanwhile, domestic raw cotton consumption decreased from 8.6 million bales in 1965 to 8.2 million in 1969.

Today, many synthetics feature permanent press, fiber strength, and other apparent advantages over natural fibers. However, vigorous research is underway to help natural fibers overcome these shortcomings. Natural fibers already have the advantages of lower cost and superior absorbent and insulating properties.

The higher price of synthetic fibers is not likely to be reduced in the near future. Moreover, the markets that could absorb these higher costs will be more limited. In fabrics where coarse or medium yarns are used, price is a vital consideration, and it is unlikely that synthetic fibers will penetrate these markets to any extent comparable to the penetration for finer woven fabrics. All of this adds up to a general slowdown in the market penetration of synthetic fibers.

It is expected by 1980 that 55-to-60 percent of the fabric used in the United States will contain manmade fiber. However, about 40 percent of this total will be blends containing some natural fiber. In 1980 it is expected that around 9 million bales of cotton still will be required to help supply total national fiber needs.

Sugar

Sugar first felt effective competition from noncaloric sweeteners around 1960 when mixtures of saccharin and cyclamate began to be used extensively in this country. Prior to the ban of cyclamates in 1969, the market share of noncaloric sweeteners had risen to about 6 percent in terms of sweetening power in 1967; the latest year for which complete figures are available. However, a large part of the saccharin and cyclamate consumed in the United States was by people who would not have used sugar anyway. Only one-fourth to one-third of the saccharin and cyclamate appears to have replaced sugar, the remainder serving to increase the sweetener market. Diet soft drinks sweetened with noncaloric substances appear to have added to the total soft drink market. In the future, noncaloric sweeteners will be watched closely in matters relating to health. It is not expected that a noncaloric sweetener can easily be found that will replace the void left by the ban on cyclamates, although some companies are known to be making extensive efforts to develop such sweeteners.

Currently, it appears that starch sweeteners (corn syrup and dextrose) are the most important sugar substitutes in the United States, and that they are likely to retain that position. While further substitution of other sweeteners for sugar seems probable, the market for sugar in this country seems likely to continue a sustained rate of growth.

Citrus

Currently, substitutes comprise 21 percent of the 600 million gallon annual retail citrus beverage market. Synthetic orange drinks which contain no citrus derivatives are available in powdered and frozen form and account for 12.5 percent of this market.

Synthetic orange drink's share of the total fruit beverage market increased from 5.4 to 6.1 percent from 1965 to 1969. The powdered synthetic orange drink increased its market share during this period, but the share of the frozen concentrated orange synthetic decreased. Because the powdered synthetic is more versatile, part of the effect on the market has been additive rather than competitive. This is because the powdered synthetic has appealed to campers and

others who would not have bought fresh or frozen orange juice. The potential of this market has stimulated considerable interest in the development of an acceptable powdered natural drink. A determined research program is now underway to create such a product. Should this happen, the market share of the synthetic powdered substitute probably would be diminished. Otherwise, projections for the next decade imply that powdered synthetic orange drink will retain but not significantly expand its share of the market.

In the next decade, per capita consumption of natural citrus juices is expected to increase by 25 percent. New groves and technological developments in the industry are expected to provide ample supplies at competitive prices.

Dairy Products

Part of the story of dairy substitutes is well known history--the overwhelming substitution of vegetable oil for butter. In 1940 per capita consumption of butter was 17.2 pounds and margarine 2.4 pounds. By 1969 a reversal in market preference placed per capita consumption of margarine at 10.8 and butter 5.4 pounds. Despite remarkable past gains, however, margarine is not expected to make any further significant inroads into the market for butter in the next 10 years.

Other notable dairy product substitutes have been developed. Various types of toppings and coffee whiteners vie with cream in the market, and artificial fabrications of ice cream and fluid milk are being persistently marketed. Recent estimates indicate nondairy coffee whiteners have taken about 35 percent of the market for light cream and substitute toppings have captured more than half the market for whipped toppings. This and other evidence confirms expectations that the market for light and heavy cream will continue to lose ground to substitute products.

The future is less certain regarding substitutes for fluid milk. Two classes of substitutes have been promoted: (1) filled milk, comprising a mixture of vegetable fat and nonfat milk solids (either fresh or reconstituted skim milk) and (2) synthetic milk, which does not contain any milk components. Today, synthetic milk is not being used in significant quantities in any U.S. markets.

Laws have substantially restricted the sale of filled milk in a number of states. As a result, the total sale of filled milk is only a fraction of a percent nationally. In the central Arizona market, however, sales of filled milk reached about 11 percent of the total fluid milk market in early 1969.

But, this may have been a unique occurrence, for sales in this market have since declined. We believe that the general penetration of substitutes in the fluid milk market will be relatively slow in the decade of the seventies. Liberalization of laws regulating their sale and discovery of more suitable fats and proteins will speed the process. Even under the most favorable circumstances, however, it is estimated that substitutes will penetrate less than 10 percent of fluid milk markets by 1980.

Meat and Poultry Substitutes

Until recently, many people considered that meats were immune to invasion of their markets by substitutes because of strong consumer loyalty and taste preferences. There was also the attitude that food developers could not possibly duplicate meat's texture, flavor, and nutritional qualities. Most attempts of the past bore this out--substitutes were decidedly inferior on both the palatability and nutritional scores. Now, however, vegetable proteins have been improved to where meatless meats are commanding attention.

Several developments have led to the interest in meat substitutes. Adverse publicity over the use of animal fat in the diet has been important. Public desire to remedy nutritional deficiencies of the needy has also played a role. The lower cost of vegetable protein has provided an incentive for using them to upgrade diets of low-income people, both here and abroad. As a result of these pressures, food technologists have developed protein substances, some resembling meat and deemed adequate nutritionally.

Vegetable protein is prepared for two general purposes--as a partial or complete substitute for meat in processed items (patties, chili, casserole-type dishes, etc.) or as meat analogs which resemble specific meats in texture, color, and flavor. Soy flour, grits, or concentrate are the usual extenders, while the concentrate or isolate is either spun or textured by some other method to be used in fabricating the analogs.

Are there indications as to where and how these vegetable proteins will be used? The first major penetration for the extender-type products will be the institutional market--hospitals, prisons, schools, and other institutions that operate with tight budget restraints but, yet, must provide nutritious meals. Restaurants of all types are also prime initial markets for vegetable protein products because food served in restaurants is not subject to the same labeling and identification requirements as food sold directly to consumers. The trend toward more away-from-home eating increases the potential of this market. By 1980 vegetable protein extenders will probably displace 15-to-20 percent of the meat in meat-type food preparations in both the institutional as well as the retail market.

Even now there are a number of meat analogs on the market, including bacon-like bits and slices, ham, beef, sea foods, and chicken. With the exception of the bacon analogs, there has been limited distribution of these substitutes. The penetration by analogs of the conventional food market will be much slower than that of the textured protein extenders in institutional markets. The market for complete meat analogs is expected to still be relatively small by 1980. An analog for chicken meat likely will prove to be even less successful than analogs for beef and pork.

Although various unusual sources of protein presently are undergoing research investigation, vegetable proteins appear to be the main meat substitute source for the next 10 years. Soybeans probably will be the important plant protein supplemented by sunflower, safflower, peanuts, and cottonseed. Since soybeans are the most important vegetable protein source of the future, we will discuss them in more detail.

Four major types of defatted soy protein products now are being used for human food. They are flour and grits, concentrates, isolates, and textured items, table 1. All four of these come from clean, dehulled soybeans. They differ from each other in protein content, physical and chemical properties, applications, and price. From a nutritional viewpoint, they are comparable to meat in amino acids, although slightly lower in methionine and lysine. Flour and grits are simplest in form, lowest in protein, with prices ranging from 5 1/2 to 11 1/2 cents per pound. Concentrates (65-70 percent protein) and isolates (90-97 percent protein) have prices from 18 cents to 45 cents per pound. These higher prices result from additional processing costs and lower yields of the finished products. Textured items may have prices over 50 cents per pound and are the fabricated foods that appear, bite, and taste most like natural animal products.

A recent survey of the producers of soy proteins for human use showed 11 firms producing flour and grits with a 1970 production of 325-500 million pounds. Four companies produced concentrates at a level of 29-30 million pounds. Three companies produced 25 million pounds of isolates. Eight firms produced textured products (extruded and spun), and volumes were around 25 million pounds. Extruded items are textured by high temperatures and high-pressures. Spun types of textured products are made by applying somewhat the same technique used for spinning rayon and nylon. In all, 17 firms produced soy protein in one form or another. However, in 1969 the soybeans used for human food was less than 2 percent of total U.S. soybean production.

Because of their functionality and easy storability, soy protein foods fit in with the new concept of engineered foods. Our convenience food industry,

Table 1--Soy protein foods

Soy protein food	Protein percent	Prices	1970 volume of production in U.S.	Current uses
Flour & grits 1/	40 to 55	5 1/2 to 11 1/2¢/lb.	325 to 500 mil. lbs.	Ingredients for baked goods, dog foods, sausages
Concentrates	65 to 70	18 to 25¢/lb.	25 to 30 mil. lbs.	Mfg. textured products; ingredients in processed meats, baby foods, health foods
Isolates	90 to 97	35 to 45¢/lb.	20 to 25 mil. lbs.	Mfg. analogs such as meatless ham, bacon, hot dogs, etc.
Textured item 2/	50 to 55	28¢ & up	25 mil. lbs.	Bacon bits, bacon strips, and similar food
(1) Extruded:	90+	50¢ & up		
(2) Spun				

1/ Flour and grits, although handled differently and sold for different uses, are essentially the same product. They are both ground, defatted flakes. Grits are coarse ground (larger than 100 mesh) and flour is fine ground (smaller than 100 mesh).

2/ Textured items are of two distinctly different types. Extruded ones made from flour are textured by high temperature, high-pressure extrusion, using a plastic-type extruder. Spun types made from isolates are spun using somewhat the same technique used in rayon or nylon.

growing at a rapid rate, uses many engineered foods, including textured soy proteins. Vegetable proteins have lower costs than proteins from animal products, and this, of course, is a distinct advantage to them, table 2.

Table 2--Relative costs of net utilizable protein
coming from selected food sources

Protein source	Price of the food <u>1/</u>	Cost of the net utilizable protein <u>2/</u>
	\$/lb.	\$/lb.
Beef .....	.49	3.26
Chicken .....	.33	2.47
Fish .....	.45	3.07
Whey (dry) .....	.09	.84
Milk .....	.07	2.34
Skim milk (dry) ..	.22	.79
Eggs .....	.25	2.09
Dry beans .....	.07	.65
Soybean flour ....	.08	.31
Wheat .....	.03	.41
Cottonseed flour ..	.35	1.57
Rice .....	.09	1.71

1/ These prices are for wholesale lots, F.O.B., point of manufacture.

2/ Crude protein values come from: Composition of Foods, Agriculture Handbook No. 8, U.S. Dept. of Agriculture, Washington, D.C. Net utilizable protein (NPU) is the proportion of nitrogen intake that is retained in the human body. The NPU values used to construct this table came from: Amino Acid Content of Food and Biological Data on Proteins, FAO Nutritional Studies Report No. 24, FAO, Rome, 1970.

From the information on relative costs, it is obvious why users (at this time decision-makers in institutional kitchens) are interested in substituting soy proteins for more expensive animal proteins. If proteins from soy cost 31 cents per pound and proteins from pork cost \$3.26 per pound, there is a strong incentive to substitute soy proteins in uses for which the two products are interchangeable. Example: pizza, sausage, frankfurters, meat loaf, sandwich salami, and the like. Add to this the functional advantages of soy proteins (water and fat retention, improvement in keeping quality, browning effects, etc.) and soy proteins appear to have a bright future. These cost and functional advantages will no doubt do much to overcome present deterrents to acceptance identified with consumer prejudices and governmental regulations. Both of these latter barriers are toppling much faster than most people have imagined possible.

Changing attitudes are causing the search for substitute proteins to gain momentum on several other fronts. Research is underway in a number of countries on techniques for extracting protein directly from plant leaves. Research on securing protein from various micro-organisms grown on petroleum is underway in the United States and several foreign countries. A multi-million dollar complex for employing the petroleum process is scheduled for completion early this year in France. Initially, production capacity for this plant to produce protein for animal feed will be more than 1,000 pounds per day.

Another source of protein is from fish in the form of a protein concentrate. A U.S. firm has joined with a Swedish firm in a venture to use a ship as a floating factory to produce a fish protein concentrate for human consumption. Despite these technological advances, however, it appears that 10 years from now traditional agriculture will still be producing most of the protein needs.

Implications

At this juncture, implications for resource adjustments and changes in market structure amount to little more than hypotheses that have been drawn from partial research findings arrived at thus far. One fact, however, seems clear: agriculture does face the prospect of a continued loss of market shares for many commodities. Synthetic fibers have made deep inroads in the market for cotton, and the trend indicates more markets held by natural fibers will be lost. However, the prospect for 1980 is that the total demand for cotton will be slightly higher than the 8.2 million bales consumed in 1969. With increased yields per acre, fewer resources will be needed to produce cotton. This means more acres, equipment, and labor will be available for the production of other products.

In the other commodity areas, the market penetration by substitutes will be more gradual, but the outlook is for continued competition from substitutes originating both within and without agriculture. For dairy and meat products, the outlook is not for an actual loss of present volume but a loss of potential expansion that would otherwise accrue from population increases. For natural citrus juices the per capita consumption is expected to increase 25 percent in the next 10 years. Only nominal interference is expected to occur from synthetic substitute drinks.

The total demand for soybeans is expected to increase both from the increased demand for animal feed and from the increased utilization of soybeans as human foods.

Competition for the protein market will certainly call for a realignment of resources to supply the needs. Processing and marketing facilities will be affected, as there will be excess capacity for some commodities and not enough for others. The structure of the processing and marketing industries may change because of changes in the time and money required to develop and market new products. These changes have policy implications for Government agencies, the entire agricultural sector, and consumers.

There are a number of directions agriculture could take in meeting the challenge of change resulting from the competition from substitutes. The first imperative is that all concerned about the future of agriculture become as knowledgeable as possible about the impending consequences posed by substitutes and synthetics.

The second is to use this knowledge as an aid in the selection of strategies that will be of most benefit to those in agriculture that are likely to be seriously affected by these changes. In the case of margarine and some other products, the legal approach was used to prevent substitute products from taking over the market for butter. To some extent, this was successful in the short run but eventually economics dictated changes. There is a commonly shared desire to ease the difficulties of individuals and groups resulting from disruptive change, but the approach must be in keeping with the problems and the times. Social and political institutions and features of the economic system have changed since the introduction of margarine, so it is quite possible that the kinds of policies that were tried then are not necessarily appropriate today.

Out of possible alternatives, innovative, technical, and economic solutions seem to hold most promise for meeting the challenge of synthetics and substitutes. A good case in point is the approach taken by the citrus industry to

meet the competition from synthetic drinks. A program of research to discover new and more convenient forms of citrus products has been emphasized. This has been combined with a program of education on the value and advantages of the natural product. The ultimate success of this approach will depend on the choice of the consumers as they look at all factors and then purchase the product that best meets their needs.

The search for economic and technical solutions to problems substitutes pose for agriculture, however, goes beyond the interest of any particular private sector. The public at large, as well as agriculture should be concerned about an equitable and orderly adjustment to change induced by the emergence of synthetic and artificial product analogs. Research agencies in the Department of Agriculture recognize this and are addressing research programs to the alleviation of possible disruptive adjustments in agriculture and the general economy.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR DAIRY

Talk by A. G. Mathis
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D. C., 11:00 A.M., Wednesday, February 24, 1971

Production

A good supply of herd replacements, the easier labor situation, and record-high milk prices favor a rise in milk production this year. On the other hand, grain and concentrate prices are higher and net incomes from dairying are lagging. Thus, a limited rise in milk production from the 117.4 billion pounds of 1970 seems likely. In January, output was up 1.0 percent, following the 1.6 percent gain in the fourth quarter of 1970.

Herd replacements on hand at the beginning of 1971 were 31.7 per 100 cows, about the same as last year's adequate supply. Though the current and prospective prices for slaughter cows are relatively high, the decline in milk cow numbers likely will continue at a slow rate. The 1.4 percent decline during 1970 was the smallest annual rate since 1960. The prospect of another small decline strongly indicates a gain in milk output this year, since milk output per cow rose more than 1.6 percent each year since 1952. The annual increase for 1965-70 averaged 2.4 percent.

The recent increases in national unemployment made more labor available for dairying. The unemployment rate will likely continue relatively high in coming months, but may decline if economic activity picks up as expected. Apparently, less favorable off-farm employment opportunities have helped slow the decline in dairy farms and milk cow numbers.

Milk prices farmers received have set new records since 1965 and price gains from that year's levels exceed 34 percent. Though farmers sold less milk, they grossed about 30 percent more income from dairying in 1970 than in 1965. However, production costs rose substantially last year and limited gains in net returns. Also, damage to the 1970 corn crop and the large feed grain requirements for livestock raised dairy ration prices sharply.

These adverse conditions--limited gains in net income and higher grain and concentrate prices--are expected to hold down production increases this year, although the milk-feed price ratio likely will remain favorable to heavy grain and concentrate feeding.

Prices and Income

Farmers received an average \$5.69 per 100 pounds for milk this past year, some $3\frac{1}{2}$ percent more than in 1969. Assuming no change in dairy price support levels and purchase prices or in Federal order pricing, a slower rise is likely in 1971. In the first quarter, prices are averaging about 3 percent over last year's \$5.68 per 100 pounds

Supply-demand conditions indicate that manufacturing grade milk prices (adjusted to the average annual fat test) will likely hold close to support levels during most of 1971. After March, manufacturing milk prices will depend largely on the 1971/72 level of support, which must be set before April 1.

In 1971, prices for milk used in bottling (Class I) will again depend on policies established in Federal order markets, which price about two-thirds of Grade A milk, and on the ability of fluid milk cooperatives to maintain premium prices above Class I minimums in Federal order markets.

Last year, higher prices and larger farm marketings caused farm gross income from dairying to climb about 5 percent to \$6 $\frac{1}{2}$ billion. A smaller price gain is in prospect this year, but larger farm marketings of milk and cream are expected, so gross dairy income for 1971 may exceed \$6.6 billion.

Utilization

Despite rising retail prices, relatively high unemployment, and competition from other foods, dairy sales in 1970 held slightly above the 109 billion pounds (milk equivalent) of 1969. Competition of milk substitutes slackened, and sales of cheese and lowfat fluid milk improved enough to overcome declines in sales of butter, whole milk, canned milk, and cream.

Last year, domestic per capita civilian consumption of milk in all dairy products fell to 562 pounds from the 568 pounds in 1969. The decline in 1971 may be slightly larger.

In 1970, larger farm marketings of milk and more imports of dairy ingredients increased USDA's removals of dairy products from the market, through the price support and related programs, to the equivalent of 5.8 billion pounds of milk, compared with 4.5 billion pounds in 1969. Prospects for a production increase this year, with little change in sales from 1970, point to a further increase in removals.

Foreign Trade

In 1970, imports of dairy products were equivalent (fat solids basis) to more than 1.9 billion pounds of milk, a fifth more than in 1969. Last year, at Secretary Hardin's request, President Nixon ordered the Tariff Commission to investigate the dairy import situation and at the end of December extended dairy import quotas to include 4 more imported dairy products. As a result, this year's imports likely will total less than last year.

Dairy exports in 1970 were equivalent to less than 0.5 billion pounds of milk, lowest since 1967. Exports in 1971 may increase slightly, because U.S. dairy product supplies may increase and world supplies are less abundant. World casein production appears down, and prices are up sharply; export prices of nonfat dry milk have increased and world milk production is below the 1969 level.

Stocks

Because more of market requirements in the seasonally low production period could be met from current output, commercial storage was relatively light in 1970--down 5 percent from a year earlier. Government holdings of butter rose sharply during 1970 and were about 100 million pounds on January 1, 1971, up from 64 million a year earlier. However, government stocks of cheese continued to be negligible and those of nonfat dry milk were only about one-third of the 138 million pounds of a year earlier. Total stocks (government and commercial) at year-end were up about 9 percent to 5.7 billion pounds milk equivalent. This year, the prospect of increased milk production without a corresponding rise in consumption indicates larger year-end stocks than in 1970.

DAIRY OUTLOOK CHARTS

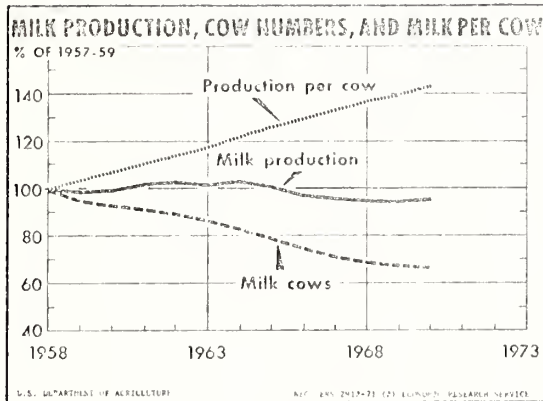


Figure 1

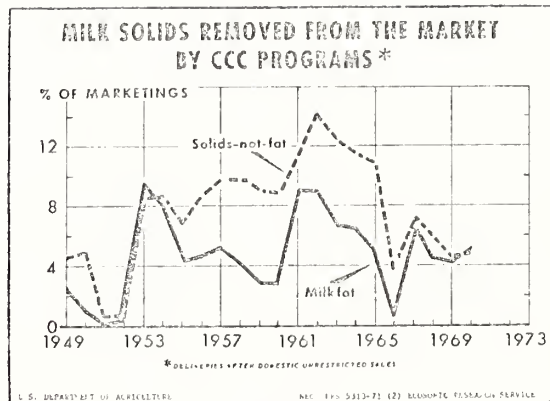


Figure 4

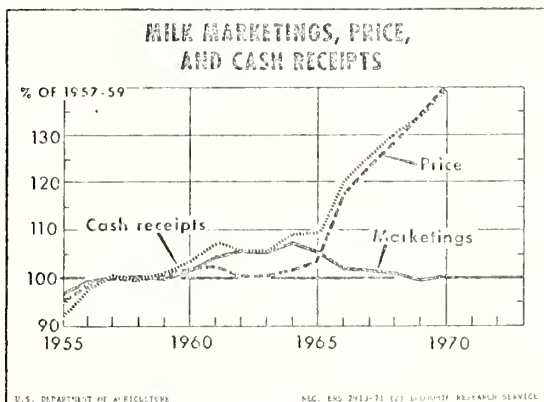


Figure 2

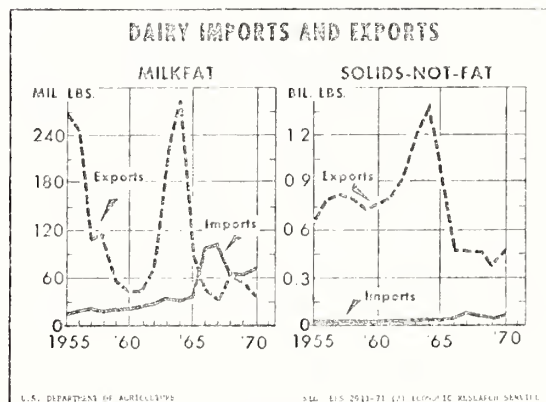


Figure 5

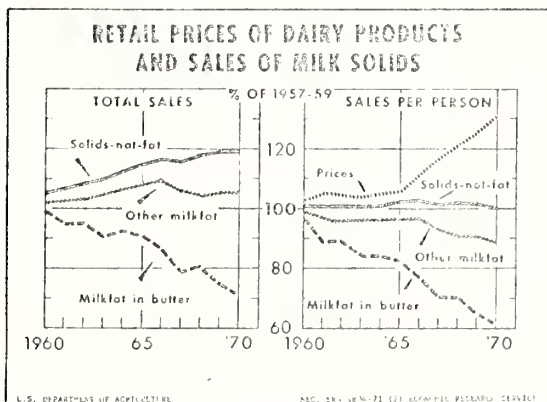


Figure 3

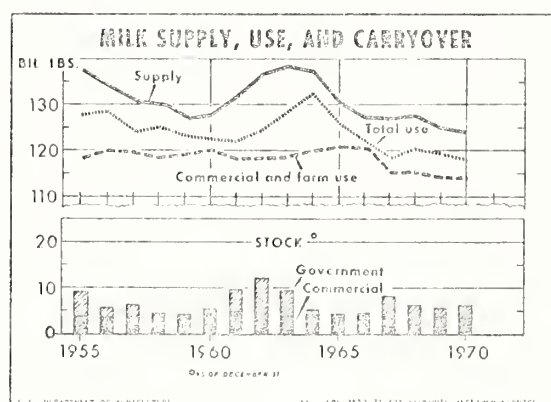


Figure 6

Table 1.--Milk production and factors affecting supply, United States, selected years, 1950-71 ^{1/}

Year	Milk cattle on farms January 1			Milk cows on farms, average during year	Milk production		Prices received by farmers, 1957-59-100	
	Cows and heifers 2 years old and over	Heifers 1-2 years	Heifer calves under 1 year		Per cow	Total	Dairy products	All farm products
	Thou.	Thou.	Thou.	Thou.	Lb.	Mil. lb.		
1950	23,853	5,394	6,208	21,994	5,314	116,602	97	107
1955	23,462	5,786	6,094	21,044	5,842	122,945	96	95
1960	19,527	5,079	5,575	17,515	7,029	123,109	101	99
1961	19,271	5,016	5,446	17,243	7,290	125,707	101	99
1962	18,953	4,887	5,264	16,842	7,496	126,251	99	101
1963	18,379	4,708	4,935	16,260	7,700	125,202	99	100
1964	17,647	4,395	4,692	15,577	8,099	126,967	100	98
1965	16,981	4,149	4,420	14,954	8,304	124,173	102	103
1966	15,987	3,860	4,151	14,093	8,507	119,892	115	110
1967	15,198	3,636	4,089	13,501	8,797	118,769	119	105
1968	14,644	3,579	4,028	13,038	9,992	117,234	124	108
1969	14,152	3,525	3,939	12,693	9,166	116,345	129	114
1970 <u>2/</u>	13,838	3,469	3,867	12,509	9,388	117,436	134	116
1970 <u>2/</u>	3/12,578	4/3,974						
1971 <u>2/</u>	12,445	3,939						
Average prices received by farmers per 100 pounds						Parity prices per 100 pounds <u>2/</u>		
All milk: whole- sale	Milk eligible for fluid market	Milk, manufac- turing grade	Bot- tling milk <u>5/</u>	Milk- fat in cream <u>7/</u>	All milk: whole- sale	Milkfat in cream <u>7/</u>	Equivalent for manu- facturing milk	
Dol.	Dol.	Dol.	Dol.	Ct.	Dol.	Ct.	Dol.	
1950	3.89	4.36	3.16	4.86	62.0	4.32	69.2	3.82
1955	4.01	4.50	3.15	5.18	57.8	4.71	74.1	3.94
1960	4.21	4.69	3.25	5.48	60.5	5.01	74.1	4.01
1961	4.22	4.65	3.36	5.43	61.5	5.13	74.9	4.09
1962	4.09	4.54	3.20	5.35	59.4	5.25	76.2	4.15
1963	4.10	4.53	3.21	5.31	59.5	5.33	77.2	4.18
1964	4.15	4.58	3.26	5.35	60.2	5.38	77.3	4.20
1965	4.23	4.63	3.34	5.39	61.1	5.53	79.2	4.31
1966	4.81	5.18	3.97	5.82	67.2	5.73	82.1	4.47
1967	5.01	5.43	4.06	6.20	68.2	5.88	84.0	4.62
1968	5.24	5.67	4.22	6.50	68.7	6.06	86.1	4.79
1969	5.49	5.87	4.45	6.70	69.0	6.49	91.5	5.15
1970 <u>2/</u>	5.69	6.07	4.70	6.94	70.9	6.87	95.3	5.49

^{1/} Includes available data for Alaska and Hawaii beginning 1960. ^{2/} Preliminary. ^{3/} New series beginning 1970. Milk cows and heifers that have calved. ^{4/} New series beginning 1970. Heifers 500 pounds and over kept for milk cow replacement. ^{5/} At beginning of marketing year. ^{6/} Dealers' average buying price for milk used in fluid products. ^{7/} Cents per pound.

Table 2.--Dairy: Feed costs, milk cow and other livestock prices, milk-livestock price ratios, and feed consumed, United States, selected years, 1950-70

Year	Dairy ration cost		Milk cow cost		Livestock prices and milk-livestock price ratios				
	Value	Milk-	Price	Milk	Beef-	Manufac-	Hog	Manufac-	
	per 100 pounds	feed price ratio	received per head	required to buy a cow	cattle price per 100 pounds	turing price milk-beef price ratio	price per 100 pounds	turing milk-hog price ratio	
	Dol.	Lb.	Dol.	Cwt.	Dol.	Lb.	Dol.	Lb.	
1950	3.16	1.24	198	51	23.30	0.14	18.00	0.18	
1955	3.16	1.28	146	36	15.60	.20	15.00	.21	
1960	2.92	1.45	223	53	20.40	.16	15.40	.21	
1961	2.92	1.45	224	53	20.20	.17	16.60	.20	
1962	2.95	1.40	221	54	21.30	.15	16.30	.20	
1963	3.04	1.36	215	52	19.90	.16	14.90	.22	
1964	3.03	1.38	209	50	18.00	.18	14.80	.22	
1965	3.03	1.40	212	50	19.90	.17	20.60	.17	
1966	3.15	1.53	246	51	22.20	.18	22.80	.18	
1967	3.23	1.56	260	52	22.30	.18	18.90	.22	
1968	3.10	1.70	274	52	23.40	.18	18.60	.23	
1969	3.15	1.74	300	55	26.20	.17	23.00	.20	
1970 1/	3.30	1.72	332	58	27.05	.17	21.90	.22	
	Grain and other concentrates fed to milk cows		Dairy pasture feed condition, as percent of normal	Alfalfa hay prices	Quantity fed per cow, winter feeding period ending in May 2/				
	Total fed 3/	Per cow 3/	Per 100 pounds of milk produced 4/	Received by farmers per ton	Paid by farmers per ton	Hay	Silage	Total hay equivalent	
	Thou. tons	Lb.	Lb.	Pct.	Dol.	Dol.	Tons	Tons	Tons
1950	18,516	1,629	30.6	83	23.10	30.90	2.2	1.7	2.9
1955	18,664	1,758	30.1	77	22.00	33.70	2.2	2.2	3.0
1960	19,821	2,259	32.2	82	21.00	31.60	2.5	2.7	3.4
1961	20,916	2,404	33.2	84	21.00	30.90	2.5	2.6	3.4
1962	21,617	2,533	34.3	80	21.40	30.60	2.5	2.8	3.4
1963	21,858	2,646	35.1	73	23.50	32.90	2.4	2.8	3.4
1964	22,464	2,800	35.9	73	24.00	32.60	2.4	3.1	3.5
1965	22,827	2,953	36.7	80	24.00	33.00	2.4	3.2	3.5
1966	22,569	3,000	37.6	78	24.70	33.40	2.3	3.3	3.4
1967	22,790	3,374	38.3	80	23.60	34.08	2.4	3.5	3.5
1968	22,886	3,519	39.1	83	23.00	32.94	2.4	3.6	3.6
1969	23,615	3,726	40.7	82	23.81	34.08	2.4	3.9	3.7
1970 1/	24,200	3,880	41.4	81	24.39	34.69	2.4	3.9	3.7

1/ Preliminary.

2/ In herds kept by dairy reporters.

3/ Not comparable to earlier years, beginning 1966.

4/ On farms where milk or cream was sold. Beginning 1966, data are for all farms where milk was produced.

5/ Estimated.

Table 3.--Milk marketings by farmers, income and utilization, United States, 1950, 1955, and 1960-70 ^{1/}

Year	Used on farms where produced	Milk marketed by farmers				Cash receipts from milk marketed by farmers													
		Sold to plants and dealers		Retailed by farmers as milk and cream	Total	Milk sold to plants and dealers	Cream sold to plants and dealers	Retailed by farmers	Total										
		As whole milk	As farm-separated cream																
- - - - -Billion pounds- - - - -										- - - - -Billion dollars- - - - -									
1950	18.3	74.2	20.2	3.9	98.3	2.9	0.5	0.3	3.7										
1955	14.6	91.0	14.7	2.7	108.3	3.6	.3	.3	4.2										
1960	9.2	103.9	7.9	2.1	114.0	4.4	.2	.2	4.8										
1961	8.4	108.4	6.9	2.1	117.3	4.6	.2	.2	4.9										
1962	7.7	110.7	5.9	2.0	118.6	4.5	.1	.2	4.9										
1963	7.1	111.2	5.1	1.9	118.1	4.6	.1	.2	4.9										
1964	6.5	114.2	4.4	1.9	120.5	4.7	.1	.2	5.0										
1965	6.0	112.7	3.6	1.8	118.2	4.8	.1	.2	5.0										
1966	5.5	109.7	3.0	1.7	114.4	5.3	.1	.2	5.5										
1967	5.2	109.4	2.4	1.8	113.6	5.5	.1	.2	5.7										
1968	4.7	108.8	2.0	1.8	112.5	5.7	4/	.2	6.0										
1969 2/	4.4	108.6	1.6	1.7	111.9	6.0	4/	.2	6.2										
1970 3/	4.1	110.4	1.3	1.7	113.3	6.3	4/	.2	6.5										
Utilization of milk supply 5/																			
			Cheese																
	Fluid	Creamery butter, net				Evapo-rated, condensed and dry whole milk	Frozen dairy products, net	Creamed cottage cheese and other factory products	Total factory products	Miscel-laneous 6/									
			American	Other															
- - - - -Billion pounds- - - - -																			
1950	42.4	27.8	9.0	2.9	7.9	6.9	0.7	55.2	0.7										
1955	49.1	28.0	10.1	3.5	7.1	8.2	1.2	58.0	1.2										
1960	53.0	29.4	9.7	3.7	6.2	9.5	1.4	59.8	1.2										
1961	52.6	31.8	11.2	3.7	6.0	9.6	1.3	63.6	1.2										
1962	53.3	33.1	10.7	3.7	5.7	9.7	1.4	64.1	1.2										
1963	54.3	30.7	10.9	3.9	5.6	9.9	1.5	62.7	1.3										
1964	54.9	31.3	11.5	4.2	5.7	10.3	1.7	64.5	1.1										
1965	55.4	28.5	11.5	4.3	5.3	10.6	1.6	61.8	1.2										
1966	55.4	23.7	12.2	4.5	5.4	10.5	1.7	57.9	2.5										
1967	54.0	26.1	12.7	4.5	4.6	10.5	1.4	59.7	1.2										
1968	53.7	24.9	12.7	4.7	4.5	11.0	1.5	59.2	- .2										
1969 2/	52.8	23.7	12.7	4.9	4.4	11.0	1.6	58.3	1.1										
1970 2/	52.0	24.0	14.3	5.3	3.9	11.0	1.7	60.2	1.6										

^{1/} Includes available data for Alaska and Hawaii beginning 1960; totals may not add due to rounding.
^{2/} Preliminary. ^{3/} Estimated. ^{4/} Less than 50 million dollars. ^{5/} Total supply includes milk marketed by farmers, net imports of ingredients such as frozen cream and butterfat-sugar mixtures, and net change in storage cream. ^{6/} Residual, including miscellaneous minor uses and any inaccuracies of independently determined use items.

Table 4.--Factors influencing and indicative of the demand for milk and dairy products, United States, 1950-70 1/

Year	Total population July 1 (including Armed Forces overseas)	Total civilian employment	BLS consumer price index 1957-59=100	Per capita disposable income		Civilian per capita disappearance			
				Actual	Deflated by consumer price index	Milk equivalent		Milk solids	
						Fat solids basis	Calcium content basis	Milk fat	Solids- not- fat
	Million	Million		Dollars	Dollars	Pounds	Pounds	Pounds	Pounds
1950	151.7	58.9	83.8	1,364	1,628	740	507	29.3	43.6
1951	154.3	60.0	90.5	1,468	1,622	712	507	28.1	43.5
1952	157.0	60.3	92.5	1,518	1,641	698	520	27.2	44.1
1953	159.6	61.2	93.2	1,582	1,697	689	510	26.7	43.5
1954	162.4	60.1	93.6	1,585	1,693	697	514	27.0	43.8
1955	165.3	62.2	93.3	1,666	1,786	706	525	27.2	44.5
1956	168.2	63.8	94.7	1,743	1,841	702	525	26.9	44.6
1957	171.3	64.1	98.0	1,801	1,838	682	518	26.1	44.3
1958	174.1	63.0	100.7	1,831	1,818	687	514	25.7	43.7
1959	177.1	64.6	101.5	1,905	1,877	667	514	25.1	43.7
1960	180.7	65.8	103.1	1,937	1,879	653	512	24.5	43.4
1961	183.8	65.7	104.2	1,983	1,903	641	505	24.0	43.0
1962	186.7	66.7	105.4	2,064	1,958	641	505	23.9	43.0
1963	189.4	67.8	106.7	2,136	2,002	631	503	23.4	42.3
1964	192.1	69.3	108.1	2,280	2,109	631	505	23.3	42.5
1965	194.6	71.1	109.9	2,432	2,213	618	503	22.9	42.4
1966	196.9	72.9	113.3	2,599	2,298	602	503	22.2	42.2
1967	199.1	74.4	116.3	2,745	2,360	580	494	21.4	41.5
1968	201.2	75.9	121.2	2,939	2,425	576	497	21.1	41.7
1969	203.2	77.9	127.7	3,108	2,434	568	492	20.9	41.4
1970 <u>2/</u>	205.4	78.6	135.3	3,333	2,463	562	492	20.6	41.0
Average retail prices, BLS index, 1957-59=100									
Year	All foods	Dairy prod- ucts	Fluid milk, grocery	Butter	Cheese, American, process	Ice cream	Evaporated milk	Margarine, colored	Per capita margarine consumption
									Pounds
1950	85.8	84.7	81.8	96.7	88.6	---	84.4	104.8	6.1
1951	95.4	94.5	90.7	108.5	100.9	101.1	96.1	117.4	6.6
1952	97.1	98.5	95.2	113.3	103.7	101.8	99.5	99.9	7.9
1953	95.6	96.8	94.1	105.3	103.4	101.0	97.4	100.4	8.1
1954	95.4	93.7	92.1	96.5	98.7	99.2	92.5	101.3	8.5
1955	94.0	93.6	92.3	94.5	98.7	97.5	91.1	98.2	8.2
1956	94.7	96.0	95.1	96.7	99.1	97.3	94.0	99.0	8.2
1957	97.8	98.8	98.4	99.6	99.9	99.3	97.5	102.7	8.6
1958	101.9	100.3	100.3	99.5	100.1	100.2	100.9	100.8	9.0
1959	100.3	101.0	101.3	101.0	100.0	100.4	101.6	96.3	9.2
1960	101.4	103.2	103.7	100.5	103.9	99.7	105.3	92.9	9.4
1961	102.6	104.7	104.0	102.6	110.4	99.5	106.1	99.0	9.4
1962	103.6	104.1	103.5	101.1	109.8	98.8	104.2	98.4	9.3
1963	105.1	103.8	103.0	101.0	110.4	98.1	103.1	95.4	9.6
1964	106.4	104.7	103.3	102.0	113.4	96.2	102.9	95.4	9.7
1965	108.8	105.0	102.8	103.6	116.6	94.4	105.3	101.9	9.9
1966	114.2	111.8	109.4	112.8	130.6	96.6	110.6	104.5	10.5
1967	115.2	116.7	113.8	115.9	136.3	99.0	117.4	104.8	10.5
1968	119.3	120.6	118.5	116.8	139.2	98.8	119.8	103.3	10.8
1969	125.5	124.5	121.8	118.3	146.8	99.5	123.5	103.0	10.8
1970 <u>2/</u>	132.4	130.5	127.0	121.1	157.5	103.8	131.4	111.1	10.8

1/ Includes available data for Alaska and Hawaii beginning 1960. 2/ Preliminary.

Table 5 ---Commercial disappearance: Total milk, annual and by quarters, 1968-70 1/

Item	1969										1970 2/			
	1968		By quarters								Annual			
	Total		1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total		
Billion pounds														
Production	117.2	28.3	32.1	29.0	27.0	116.3	28.5	32.2	29.3	27.5	117.4			
Farm use	4.7	1.1	1.1	1.1	1.1	4.4	1.1	1.0	1.0	1.0	4.1			
Marketings	112.5	27.1	30.9	27.9	26.0	111.9	27.4	31.2	28.3	26.5	113.3			
Beginning commercial stocks 3/	4.2	3.9	3.4	4.6	4.6	3.9	3.8	3.5	4.8	4.3	3.8			
Imports	1.8	.3	.4	.3	.6	1.6	.5	.4	.5	.6	1.9			
Total supply	118.5	31.3	34.7	32.8	31.2	117.5	31.7	35.1	33.6	31.4	119.1			
Ending commercial stocks 3/	3.9	3.4	4.6	4.6	3.8	3.8	3.5	4.8	4.3	3.6	3.6			
Net removals (CCC and FIK)	5.2	1.4	2.1	.7	.3	4.5	1.3	2.9	1.2	.5	5.8			
Commercial disappearance Actual	109.4	26.5	28.0	27.5	27.2	109.2	26.9	27.5	28.0	27.4	109.7			
Percent change from previous year	-0.2	-0.6	-1.2	0.8	0.3	-0.2	1.2	-1.8	1.6	0.8	0.4			

1/ Totals may not add due to rounding. 2/ Preliminary. 3/ Excludes cream and bulk condensed milk.

Table 6.--Commercial disappearance: Selected dairy products, United States, annual 1965-70,
by quarters, 1969-70

Year and quarter	Butter, creamery 1/		Cheese		Nonfat dry milk	Canned milk	Frozen products 3/
	Mil. lb.	American 2/	Mil. lb.	Other			
	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. gal.
1965	1,095.8	1,127.4	665.2		942.1	1,841.7	1,033.4
1966	1,086.0	1,207.8	706.2		1,156.8	1,776.8	1,038.7
1967	973.9	1,175.9	738.2		1,012.2	1,571.5	1,040.2
1968	976.0	1,213.3	803.0		1,058.1	1,496.8	1,082.3
1969	924.8	1,280.9	857.9		1,021.5	1,391.0	1,093.8
1970	900.7	1,407.3	903.4		1,061.1	1,196.8	1,094.5
1969							
1st	237.9	322.8	196.1		239.7	372.7	228.3
2nd	227.3	316.6	216.2		295.2	343.6	307.0
3rd	218.4	321.3	203.7		237.3	316.5	335.0
4th	241.2	320.2	241.9		249.3	358.2	223.5
1970							
1st	238.2	354.1	224.5		262.7	325.3	233.2
2nd	199.5	340.6	217.7		286.4	299.7	304.8
3rd	216.9	368.3	205.2		262.6	272.6	329.2
4th	246.1	344.3	256.0		249.4	299.2	227.3
1970/69 percent change							
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
1st	0.1	9.7	14.5		9.6	-12.7	2.1
2nd	-12.2	7.6	.7		-3.0	-12.8	-.7
3rd	-.7	14.6	.7		10.7	-13.9	-1.7
4th	2.0	7.5	5.8		0	-16.5	1.7

1/ Imports include butter equivalent of butteroil. 2/ Imports include Colby cheese; stocks do not include processed cheese. 3/ Excludes Mellorine.

Table 7.--Milk equivalent: Domestic civilian disappearance, commercial and noncommercial sources, total and per capita, United States, 1950, 1955, and 1960-70

Year	Civilian disappearance						Consumption excluding donations from USDA supplies		
	Consumed on farms 1/	USDA donations to civilian channels	National School Lunch and Special Milk Programs	Commercial sources	All sources	Total military utilization 2/	Civilian	Military	Total
----- Million pounds -----									
1950	14,250	1,271	623	94,964	111,108	1,766	109,837	1,766	111,603
1955	11,359	3,102	1,394	98,697	114,552	3,329	111,450	2,627	114,077
1960	6,610	2,040	2,455	105,259	116,364	2,532	114,324	2,228	116,552
1961	5,950	3,385	2,602	104,191	116,128	2,472	112,743	2,111	114,854
1962	5,334	4,848	2,755	104,839	117,776	2,969	112,928	2,344	115,272
1963	4,813	4,929	2,902	105,239	117,883	2,964	112,954	2,415	115,369
1964	4,337	5,206	3,031	107,008	119,582	3,007	114,376	2,525	116,901
1965	3,915	3,593	3,215	107,969	118,692	2,819	115,099	2,387	117,486
1966	3,508	1,129	3,373	103,713	116,723	2,376	115,594	2,376	117,970
1967	3,174	3,105	3,441	103,730	113,450	2,117	110,345	2,117	112,462
1968	2,891	4,118	3,519	103,212	113,740	3,225	109,622	2,116	111,738
1969	2,630	4,583	3,494	102,786	113,493	2,647	108,910	2,002	110,912
1970 3/	2,370	4,257	3,494	103,529	113,650	2,518	109,393	1,883	111,276
----- Pounds -----									
----- Pounds -----									
1950	95	8	4	632	740	731			
1955	70	19	9	608	706	687			
1960	37	11	14	591	653	642			
1961	33	19	14	575	641	622			
1962	29	26	15	570	641	614			
1963	26	26	16	564	631	605			
1964	23	27	16	565	631	604			
1965	20	19	17	563	618	600			
1966	18	6	17	561	602	596			
1967	16	16	18	530	580	564			
1968	15	21	18	522	576	555			
1969	13	23	17	515	568	545			
1970 3/	12	21	17	512	562	541			

1/ Milk and butter consumed in households on milk-producing farms, 1947-54; 1955 to date includes a small amount of farm-churned butter sold. 2/ Includes any quantities used by military in civilian feeding programs abroad. 3/ Preliminary. 4/ Aggregate in each category divided by total civilian population.

Table 8.--Milk and dairy products sales (domestic disappearance, commercial sources) total and per capita, United States, 1965-70 ^{1/}

Year	Fluid milk product sales					Cheese						Evaporated and condensed
	Fluid whole milk	Cream 2/	Low-fat milk 3/	Total		Butter	Whole and part skim milk 5/		Cottage cheese 6/	Whole milk	Skim- and but-ter- milk	
				Product weight	Whole milk equivalent 4/		Amer-ican	Other				
----- Million pounds -----												
Total												
1965	49,750	1,430	6,390	57,570	55,400	1,122	1,106	653	901	2,092	967	
1966	49,640	1,380	7,220	58,240	55,400	1,064	1,206	696	894	1,945	1,038	
1967	48,170	1,300	8,130	57,600	54,000	976	1,182	728	897	1,775	985	
1968	47,785	1,255	9,400	58,440	53,700	986	1,204	794	928	1,735	949	
1969	46,825	1,185	10,640	58,650	52,800	928	1,257	845	966	1,547	1,018	
1970 1/	45,840	1,120	11,570	58,530	52,000	900	1,393	894	1,043	1,410	1,001	

Per capita 8/												
Pounds												
1965	264	7.6	33.9	305	294	5.8	5.7	3.4	4.6	10.8	5.0	
1966	260	7.2	37.8	305	290	5.4	6.2	3.6	4.6	9.9	5.3	
1967	249	6.7	42.0	298	279	4.9	6.0	3.7	4.5	9.0	5.0	
1968	244	6.4	48.0	298	274	4.9	6.0	4.0	4.6	8.7	4.7	
1969	236	6.0	53.6	296	266	4.6	6.2	4.2	4.8	7.7	5.0	
1970 1/	227	5.6	57.4	290	258	4.4	6.8	4.4	5.1	6.9	4.9	

Frozen products					Dry products							
Ice cream	Ice milk	Sherbet	Other	Mello-rine	Whole milk	Nonfat dry milk	Butter-milk	Whey	Malted milk			
----- Million pounds -----												
Total												
1965	3,634	1,270	295	39	255	61	931	79	113	20		
1966	3,606	1,320	309	41	247	65	1,024	63	137	20		
1967	3,578	1,368	299	42	258	51	986	67	148	14		
1968	3,711	1,429	320	42	268	50	1,033	67	149	18		
1969	3,678	1,513	341	36	267	40	1,027	60	151	18		
1970 1/	3,674	1,527	334	34	250	42	1,021	52	154	17		

Per capita 8/												
Pounds												
1965	18.8	6.6	1.5	0.2	1.3	0.3	4.8	0.4	0.6	0.1		
1966	18.4	6.7	1.6	.2	1.3	.3	5.2	.3	.7	.1		
1967	18.1	6.9	1.5	.2	1.3	.3	5.0	.3	.7	.1		
1968	18.6	7.2	1.6	.2	1.3	.3	5.2	.3	.7	.1		
1969	18.2	7.5	1.7	.2	1.3	.2	5.1	.3	.7	.1		
1970 1/	17.9	7.5	1.6	.2	1.2	.2	5.0	.3	.8	.1		

^{1/} Excludes milk used on farms where produced and distribution from USDA supplies; includes sales to the Armed Services for use in the United States. See DS-328, November 1969, table 12 for 1950-64 data.

^{2/} Includes milk and cream mixtures. ^{3/} Includes skim milk, buttermilk, and flavored milk drinks. ^{4/} Fat solids basis. ^{5/} Excludes cottage cheese. ^{6/} Includes full-skim American. ^{7/} Preliminary. ^{8/} Based on resident population, except fluid milk product sales-based on estimated population using fluid products from purchased sources.

Table 9 --Dairy products removed from the commercial market by programs of the United States Department of Agriculture, 1949-71

Year and month	Removals ^{1/}					Solids content of removals		
	Butter	American cheese	Nonfat dry milk	Milk equivalent	Milk-fat	Solids-not-fat	As a percentage of marketings	
	^{2/}	^{3/}	^{4/}	^{5/}	^{5/}	^{5/}	Milk-fat	Solids-not-fat
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Percent	Percent
1949	111.7	25.5	325.5	2,489	100.4	321.1	2.6	4.6
1950	14.6	83.2	327.2	1,126	40.9	339.9	1.1	4.9
1951	6/-27.3	6/-7.1	35.3	6/-618	6/-24.0	31.5	6/	.5
1952	16.1	1.7	42.3	339	13.8	41.2	.4	.6
1953	355.2	302.5	597.1	10,200	387.5	668.9	9.7	8.6
1954	305.1	242.5	644.4	8,588	328.2	695.5	8.0	8.7
1955	162.0	141.3	534.7	4,685	179.6	558.0	4.3	6.8
1956	164.6	186.5	723.4	5,206	197.6	753.0	4.7	8.7
1957	172.5	240.6	825.2	5,870	222.1	867.5	5.2	9.8
1958	183.7	75.0	886.0	4,658	178.2	875.0	4.2	9.8
1959	123.7	57.2	830.3	3,214	123.8	815.6	2.9	9.1
1960	144.8	.3	852.8	3,101	122.6	819.8	2.9	8.9
1961	329.4	100.0	1,085.6	8,019	305.0	1,075.3	6.9	11.2
1962	402.7	212.9	1,386.1	10,724	402.4	1,399.0	9.1	14.3
1963	307.5	110.9	1,219.2	7,745	291.8	1,210.1	6.7	12.3
1964	295.7	128.5	1,168.8	7,676	287.6	1,166.9	6.5	11.6
1965	241.0	48.6	1,098.4	5,665	217.4	1,074.0	5.0	10.8
1966	25.1	10.8	365.8	645	26.2	355.5	.6	3.7
1967	265.1	180.5	686.9	7,427	276.3	719.1	6.6	7.5
1968	194.8	87.5	557.8	5,159	193.2	575.4	4.7	6.0
1969	187.9	27.7	407.2	4,479	171.6	421.5	4.2	4.4
1970 ^{7/}								
Jan.	14.0	1.9	24.9	316	12.1	24.7		
Feb.	27.3	2.2	24.5	599	22.9	24.5		
Mar.	17.8	1.9	33.2	396	15.2	32.7		
Apr.	30.4	.4	35.7	647	24.9	34.8		
May	47.4	5.8	47.8	1,060	40.4	48.2		
June	50.2	9.0	66.4	1,152	43.8	67.2		
July	25.2	8.9	53.4	652	24.6	56.9		
Aug.	12.2	8.1	35.3	354	13.2	37.8		
Sept.	4.9	5.7	35.9	164	6.2	36.7		
Oct.	5.1	2.1	33.2	154	5.9	34.6		
Nov.	7.0	1.8	27.8	179	6.9	28.5		
Dec.	4.9	1.2	33.5	132	5.2	34.0		
Total	246.4	49.0	451.6	5,805	221.3	460.6	5.3	4.8
1971 ^{7/}								
Jan.	25.1	.2	23.3	560	21.5	25.1		
Feb.								

^{1/} Delivery basis, after unrestricted domestic sales. ^{2/} Includes butter equivalent of anhydrous milkfat, PIK, and purchases under Sec. 709. ^{3/} Includes purchases under Sec. 709. ^{4/} Includes PIK certificates issued. ^{5/} Includes evaporated milk beginning 1968. ^{6/} Domestic sales exceeded purchases. ^{7/} Preliminary.

Table 10.--Stocks of dairy products, United States, end of year or month, 1960-70

Year and month	Commercial stocks					Government stocks					Total milk equiv- alent 3/
	Butter	Amer- ican cheese	Other cheese	Canned milk	Nonfat dry milk	Butter 1/	American cheese 2/	Nonfat dry milk	Evapo- rated milk		
						- - - Million pounds - - -					
1960	21.2	291.4	40.6	227.5	103.1	55.6	0.6	279.9	---	---	5,392
1961	19.5	366.4	53.0	230.7	132.5	205.3	53.5	354.9	---	---	9,902
1962	31.2	307.1	37.8	145.9	99.0	328.2	79.1	576.0	---	---	12,166
1963	32.1	282.7	39.1	137.4	81.5	239.0	39.1	404.5	---	---	9,691
1964	37.1	271.9	42.3	192.2	108.8	33.8	24.4	65.5	---	---	5,294
1965	27.1	270.2	37.6	140.7	58.2	25.0	.3	96.2	---	---	4,458
1966	30.2	322.1	50.4	204.5	118.2	2.1	.2	---	---	---	4,858
1967	18.4	302.3	46.2	196.0	98.7	150.2	80.8	157.6	---	---	8,252
1968	14.5	291.1	62.3	101.3	79.0	102.9	51.6	198.7	5.6	---	6,634
1969	25.1	264.4	52.1	106.9	83.9	63.6	1.1	137.8	42.9	---	5,246
1970 4/	15.6	251.2	69.6	115.7	101.4	100.5	1.2	42.6	.1	---	5,734
1969											
Mar.	20.2	240.9	54.9	57.2	64.1	101.1	22.0	205.3	.9	---	5,735
June	41.8	296.3	59.1	155.5	141.0	153.5	21.3	203.7	5.4	---	8,106
Sept.	33.9	305.7	60.4	197.6	130.5	121.4	7.0	209.1	27.1	---	7,347
Dec.	25.1	264.4	52.1	106.9	83.9	63.6	1.1	137.8	42.9	---	5,246
1970 4/											
Mar.	28.0	238.5	47.3	88.4	80.6	63.6	.4	79.3	39.8	---	4,952
June	38.9	314.3	55.1	173.2	159.0	147.1	.9	66.4	1.3	---	7,886
Sept.	26.1	285.8	69.4	187.4	144.8	145.1	3.4	70.5	.1	---	7,446
Dec.	15.6	251.2	69.6	115.7	101.4	100.5	1.2	42.6	.1	---	5,734

1/ Includes butter equivalent of butteroil and ghee, 1962-65. 2/ Includes process cheese held by USDA beginning May 1967. 3/ Includes manufactured products for which current monthly series are available (excludes nonfat dry milk). Excludes cream and bulk condensed milk beginning 1968.
4/ Preliminary.

Table 11.--Dairy products: U.S. imports, quota and non-quota products, 1969-70 1/

Product	Calendar year quota	December		1970 as a percentage of 1969		Annual	
	Thou. lb.	1969	1970	Pct.	Thou. lb.	1970	1970 as a percentage of 1969
Cheese, quota types							
American-Cheddar	10,037.5	1,513	3,491	231	9,606	10,132	105
-Other	6,096.6	2,447	256	10	6,034	1,682	28
Italian-Original loaves	11,500.1	1,180	1,328	113	10,547	6,617	63
-Other	1,494.0	53	6	11	1,742	672	39
Edam and Gouda-Natural	9,200.4	[1,671]	[1,736]	[104]	[11,457]	[11,798]	[103]
-Processed	3,151.0	640	737	115	4,878	4,767	98
Blue mold	5,017.0	606	543	90	3,678	3,148	86
Swiss-Emmenthaler, -47¢	4,271.0	191	210	110	3,125	3,155	101
-Gruyere-process, -47¢	3,289.0	2,980	3,836	129	28,912	22,640	78
Other, -47¢	25,001.0	11,281	12,143	108	79,979	64,611	81
Total	79,057.6						
Cheese, non-quota types							
Swiss-Emmenthaler, 47¢ +		1,612	2,484	154	16,430	23,281	142
-Gruyere-process, 47¢ +		950	930	98	9,524	10,720	113
Other, 47¢ + 2/		4,439	5,668	128	16,262	38,467	237
Recorino		2,305	2,862	124	19,227	20,616	107
Rocoufort		220	168	76	2,061	2,065	100
Other 3/		93	334	359	619	1,588	257
Total		9,619	12,446	129	64,123	96,737	151
Other quota products							
Butter	707.0	29	56	193	678	4,747	110
Butteroil	1,200.0	---	---	---	1,200	1,200	100
Butterfat mixtures	2,580.0	135	---	---	2,741	2,397	87
Frozen cream	12,540.0	1,013	2,806	277	14,748	11,063	75
Dried skim milk	1,807.0	67	---	---	1,914	1,760	92
Dried buttermilk	496.0	10	100	1,000	174	420	241
Evaporated milk	1,312.0	61	---	---	1,313	1,235	94
Condensed milk	4,079.0	153	161	105	4,058	1,507	37
Chocolate crumb	17,000.0	1,756	1,230	70	18,603	13,746	74
Non-quota products							
Ice cream		5,760	841	15	20,263	62,688	309
Casein		11,752	18,157	155	116,108	135,262	116
Lactose		609	263	43	4,187	4,221	101
Milk equivalent, fat solids ba-							
cis, total all products	5/	224,720	248,386	111	1,621,003	1,926,904	119

1/ Preliminary. 2/ Includes low-fat cheese. 3/ Gjetost, Bryndza, Cammelost and Moekkelost, and Goya. 4/ Includes 40,400 pounds not subject to quota. 5/ Milk equivalent of import quotas for dairy products, 946 million pounds.

Table 12.--Dairy product exports, annual 1960-68,
by months, 1969-70

Year and month	Butter 1/	Cheese	Evapo- rated milk	Con- densed milk	Dry whole milk	Nonfat dry milk	Malted milk	Infant and dietetic foods	Milk equiv- alent 2/
Million pounds									
1960	8.0	9.1	101.5	41.9	28.1	446.7	2.9	16.3	776
1961	6.7	8.8	92.3	47.3	17.5	734.2	2.9	19.1	655
1962	34.9	19.1	66.3	47.7	13.4	873.6	2.1	16.0	1,287
1963	192.5	33.6	65.5	56.6	29.8	1,119.2	2.3	18.0	5,036
1964	296.5	9.1	37.3	62.8	12.3	1,310.9	2.6	18.6	6,872
1965	65.7	6.8	24.7	65.8	18.6	863.4	2.7	16.0	1,836
1966	13.7	6.0	38.4	94.3	15.6	387.7	2.5	16.5	778
1967	2.9	6.4	33.8	29.2	11.9	409.0	1.4	17.2	363
1968	32.2	6.8	32.7	42.5	17.2	397.1	2.2	18.5	1,188
1969									
Jan.	4/	0.4	3.7	1.0	0.6	21.1	4/	0.6	25
Feb.	4/	.5	2.9	.9	1.1	21.5	0.1	.5	29
Mar.	4/	.8	4.1	3.5	1.4	27.2	.2	1.6	45
Apr.	1.4	.5	2.2	4.5	2.1	41.5	.1	1.3	76
May	10.2	.6	2.9	7.4	1.4	32.6	.2	3.3	271
June	8.9	.5	2.4	6.1	1.5	41.8	.1	1.6	238
July	4/	.4	4.2	4.5	1.2	19.7	4/	1.5	40
Aug.	4/	1.7	2.0	4.0	1.3	23.7	4/	1.3	49
Sept.	4/	.4	2.8	8.2	1.1	15.9	.1	1.3	45
Oct.	4/	.6	4.2	7.0	1.2	36.9	.1	1.5	51
Nov.	4/	.4	3.4	4.5	.4	26.8	4/	1.4	34
Dec.	4/	.5	2.4	.6	.6	20.6	4/	.9	22
Total 5/	20.8	7.2	37.1	52.2	13.9	329.4	1.0	16.9	926
1970 3/									
Jan.	1.5	0.7	2.3	4/	1.4	41.3	4/	1.3	65
Feb.	.1	.5	3.2	4/	3.7	44.7	0.1	1.0	52
Mar.	4/	.4	2.3	0.1	1.2	28.5	.1	.7	27
Apr.	4/	.8	4.4	4/	1.0	27.9	.1	1.2	33
May	4/	.7	3.6	4/	.9	31.6	4/	1.7	31
June	4/	.4	1.8	4/	.7	28.7	.1	1.6	22
July	.1	.6	2.5	---	.5	33.4	.3	1.5	29
Aug.	4/	.5	3.1	4/	.6	57.0	.2	1.7	32
Sept.	.1	.5	1.2	.6	.5	38.3	.1	1.9	26
Oct.	4/	.7	2.0	6.9	.7	21.1	4/	2.1	42
Nov.	4/	.6	3.0	4.6	.7	46.9	.1	1.7	42
Dec.	4/	.4	3.9	4.2	.9	16.7	.1	2.2	37
Total 5/	1.9	6.7	33.3	16.4	12.6	416.1	1.3	18.6	437

1/ Includes butter equivalent of butteroil, ghee, and anhydrous milkfat. 2/ Includes milk equivalent of minor products not shown separately. 3/ Preliminary. 4/ Less than 50,000 pounds. 5/ May not add due to rounding.

UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR TOBACCO

Talk by Robert H. Miller
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 11:00 A.M., Wednesday, February 24, 1971

The tobacco outlook for 1971 is mixed. Consumer demand for cigarettes and other tobacco products is still at a high level, although the decline in leaf tobacco use continues. Despite smaller beginning supplies, little change is likely in carryover stocks. With smaller marketing quotas this year, growers are expected to harvest substantially less tobacco than last season. So their cash receipts will trail last year's near-record \$1.4 billion. On the brighter side, price supports will go up 4.2 percent and the smaller supplies are expected to result in higher prices. Production costs may rise at a slower rate than during the past few years.

Tobacco Products

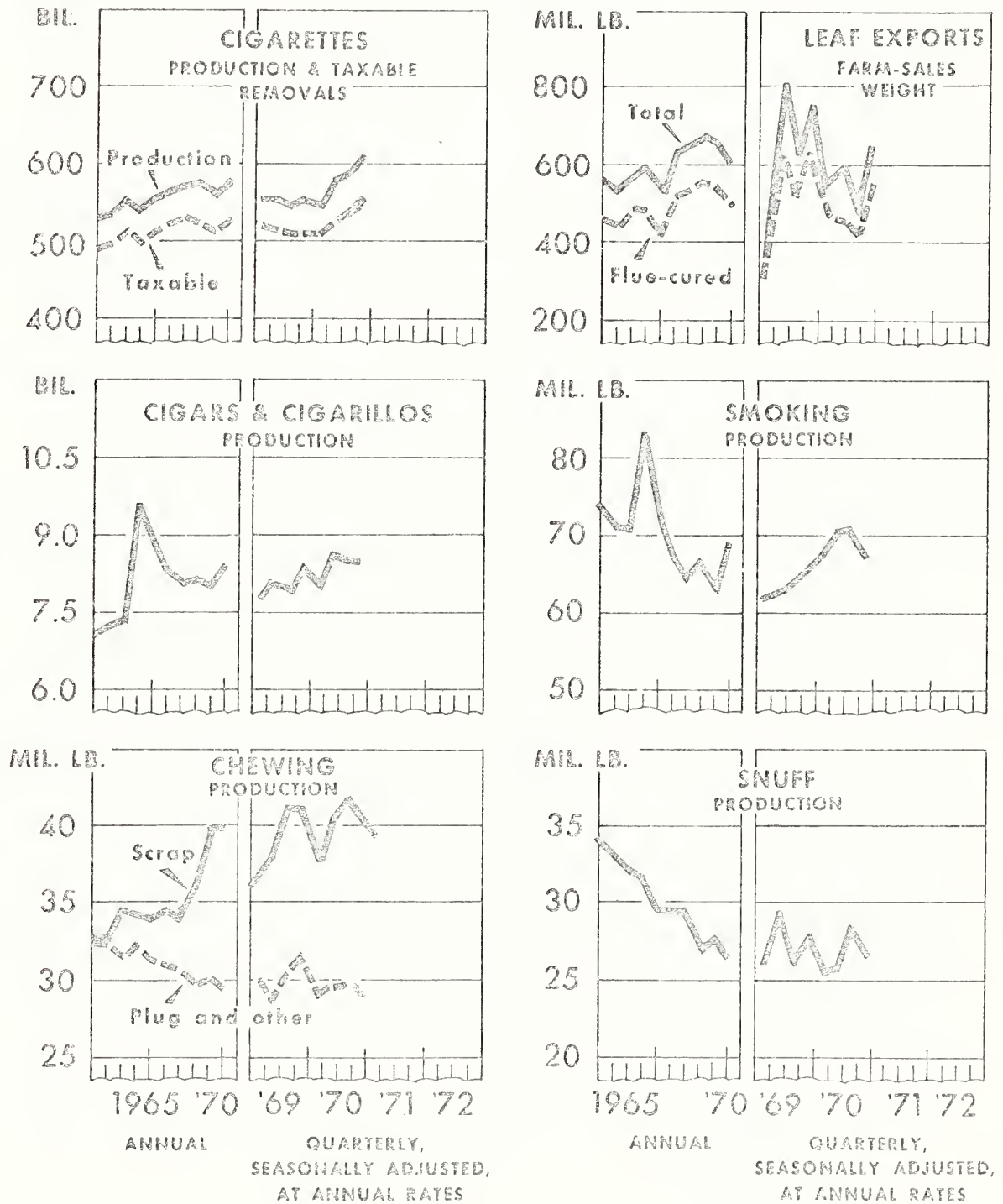
Cigarettes take four-fifths of the tobacco used in the United States. Cigarette output totaled about 583 billion last year--26 billion above 1969. Some of the increase occurred as cigarette manufacturers built inventories as a strike hedge for 1971. The number of cigarettes consumed per capita, 18 years and over, in 1970 was about 4,030 (201 packs) 1 percent above 1969. This year U.S. smokers (including overseas forces) may smoke about the same number as the 1970 level. But, the tobacco per cigarette will continue to decline.

Retail cigarette prices rose 9 percent in 1970, due to increases in State and local taxes and higher wholesale prices. Further price increases are likely, reflecting tax hikes again this year. State excise taxes currently range from 2 cents per pack in North Carolina to 18 cents in Pennsylvania. More people are of smoking age and incomes are trending upward, but retail price increases and reduced cigarette advertising may hold down consumption in 1971.

Last year the Public Health Smoking Act of 1969 amended the Cigarette Labeling and Advertising Act of 1965 with 2 main changes: (1) Cigarette advertising on radio and television was stopped January 1, 1971; and (2) the cigarette package warning label now reads: "Warning: The Surgeon General Has Determined That Cigarette Smoking is Dangerous to Your Health." Related to this, cigarette manufacturers have agreed to report the tar and nicotine content of cigarettes in their advertising.

TOBACCO OUTLETS

Recent Trends in Manufactured Products and Exports



Since the mid-1950's manufacturers have reduced the quantity of tobacco in a cigarette (leaf equivalent) by an average of 2 percent a year. This trend is primarily associated with the increased production of filter-tip cigarettes, which have a shorter tobacco column than most nonfilter brands. Greater use of leaf midribs and processed sheet tobacco, and decreased cigarette circumference are other factors. Various manufacturing efficiencies such as freeze drying and puffing are expected to further reduce the tobacco per cigarette in the years ahead.

The consumption of cigars--(including cigarillos) last year was about 8.2 billion, 2 percent above 1969, but 10 percent below the 1964 peak. Cigars from Puerto Rico recorded a sizable gain to account for 15 percent of U.S. consumption. Consumption per male 18 years and over was 126 cigars, about the same as 1969. Total cigar and cigarillo consumption this year may gain a little from that of 1970. But the shift continues to smaller, lower-priced cigarillo types and little cigars (cigarette-size).

The 1970 output of smoking tobacco rose to 69 million pounds, a 5-year high. The overall gain was 9 percent above 1969 but cigarette cut tobacco for roll-your-owns accounted for the increase; pipe tobacco was unchanged, as imports were up. Last year's level of output and sales may hold in 1971.

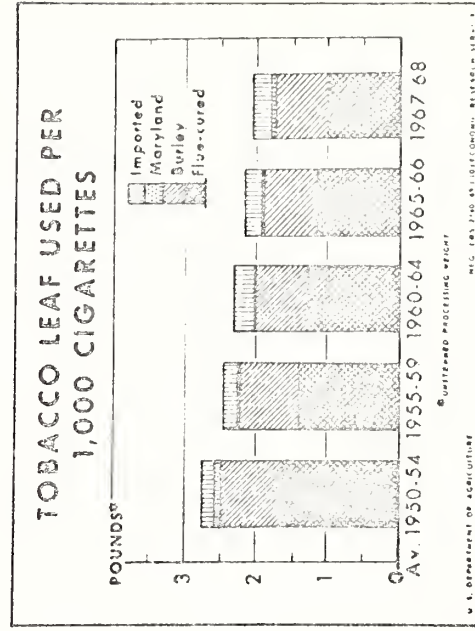
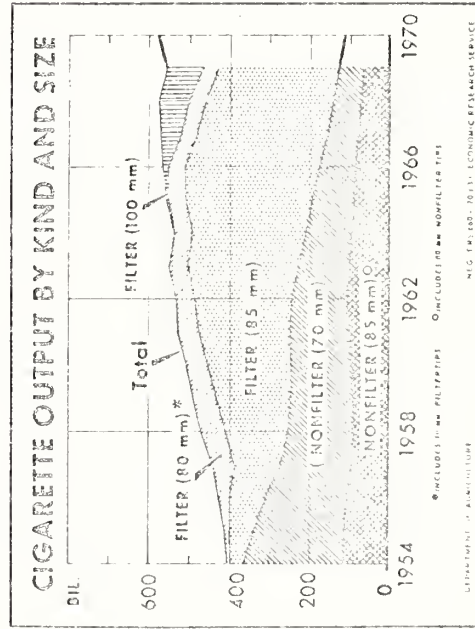
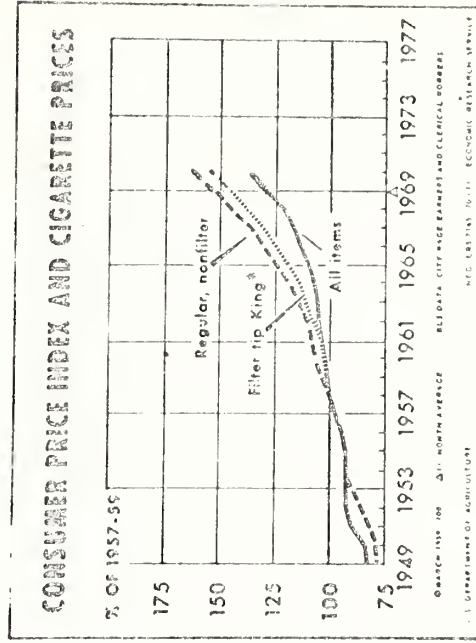
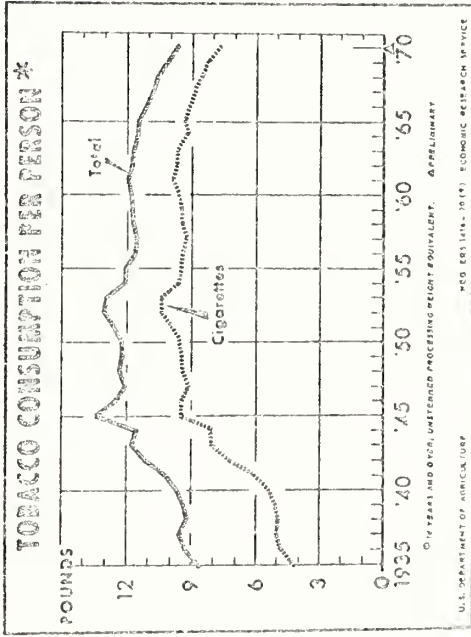
Output of chewing tobacco was 69 million pounds last year, 1 percent less than 1969's level. Scrap output steadied last year after a big jump in 1969. Production of plug tobacco and snuff continues to decline. Except for scrap and fine-cut chewing tobacco, per capita use of these products seems likely to continue downward in 1971.

Foreign Trade

U.S. exports of tobacco and tobacco products in 1970 fell short of the record \$696 million in 1969. Record high tobacco products exports failed to offset the decline in unmanufactured tobacco. Unmanufactured tobacco exports last year were valued at \$488 million and tobacco product exports reached \$191 million. In recent years leaf and product exports represented about 35-40 percent of the U.S. tobacco crop.

U.S. exports of unmanufactured tobacco in 1970 totaled 510 million pounds (570 million, farm-sales weight)--12 percent below 1969. Last year, our major markets, the United Kingdom and the European Community, took less tobacco than in 1969. Several other countries in Europe also took less.

U.K. cigarette manufacturers reduced overall imports and shifted from U.S. tobacco to lower cost supplies. U.K. tobacco consumption is declining and manufacturers anticipated unfavorable consumer reaction from a smoking and health report which was issued in January. Also, the U.K. entry into the European Community (EC) is uncertain.



The EC adopted the Common Agricultural Policy (CAP) for tobacco last year. The CAP contains several provisions such as buyers premiums and high EC support prices for local production. These features can hurt our exports.

U.S. exports in 1971 will do well to hold at the 1970 level, assuming the U.N. sanctions against Rhodesia continue. World cigarette production is still expanding rapidly and the demand for light tobaccos for blending--primarily flue-cured and burley--is on the upswing. Compared with 1969, last year's foreign flue-cured crop was smaller, but overseas burley output rose sharply. Higher U.S. prices, and improved quality tobacco by several developing countries in Latin America, Asia, and Africa increased the competition in world markets. However, the U.S. export payment and the high quality of U.S. crops help our exports.

The United States is the third largest tobacco importing country because U.S. manufacturers blend certain foreign tobaccos with domestic types to make cigarettes and cigars. Oriental cigarette leaf is the principal kind of import; imports for consumption (factory use) last year were down 1 percent to 142 million pounds. In addition, 14 million pounds of oriental scrap and 8 million pounds of imported flue-cured and burley leaf were used. Both categories were above 1969.

Cigar tobacco imports are mainly filler tobacco, including scrap. The Philippines is our leading source. During October 1969-September 1970 imports brought in 91 million pounds (farm-sales weight for consumption) up 13 million from a year earlier.

Imports for consumption accounted for about one-sixth of domestic tobacco utilization last year. This high level of factory use will probably continue due to large foreign stocks in the United States and substantial exportable supplies overseas. Costs of U.S. and oriental leaf for cigarettes are similar, but oriental scrap carries a much lower value.

Leaf Tobacco

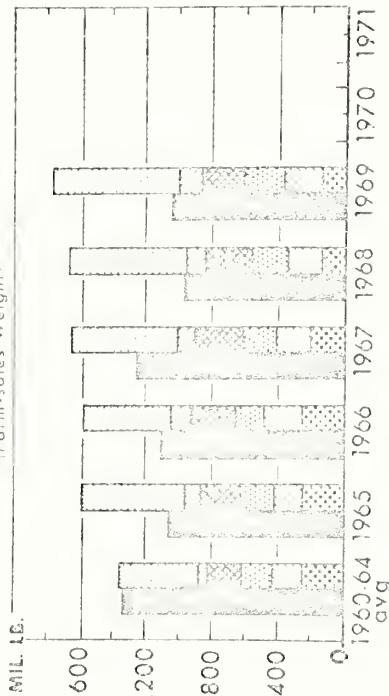
The U.S. tobacco crop in 1970 was 6 percent larger than the previous year's level. Smaller carryovers have reduced supplies available for the 1970/71 marketing year 1 percent even though the burley supply is about the same. Despite the larger crop, a stronger market meant less tobacco went under loan during the 1970 season. Commercial firms took the largest volume of tobacco from auction floors since 1964. While flue-cured prices slipped back, burley gained. The all-tobacco price per pound was a record high, 1 percent above the 1969/70 level.

At the beginning of 1971, tobacco held under Government loan totalled 1,371 million pounds (farm-sales weight). This was about equal to the record high of 6 years earlier. Loan stocks are largely flue-cured and burley. Prospects are for little change during the rest of this marketing year.

Government price support is mandatory for the kinds of tobacco produced under marketing quotas. The 1971 crop price support levels for eligible to-

FLUE-CURED TOBACCO: ESTIMATED FREE WORLD PRODUCTION

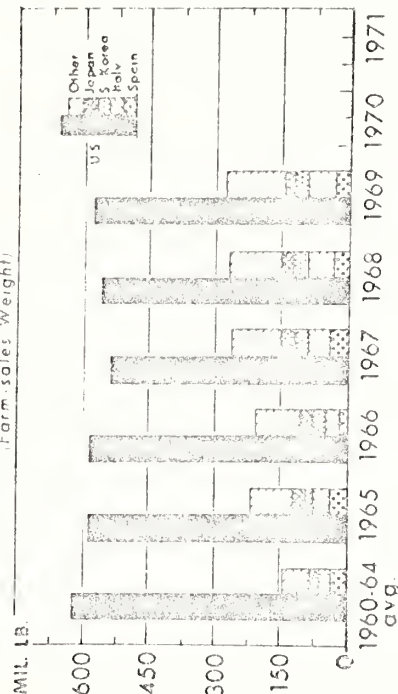
(Farm-sales Weight)



US Korea Japan India Canada Rhodesia-Zambia-Malawi
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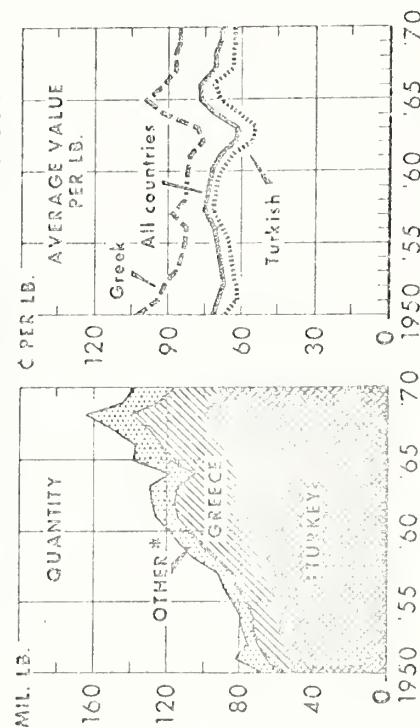
BURLEY TOBACCO: ESTIMATED FREE WORLD PRODUCTION

(Farm-sales Weight)



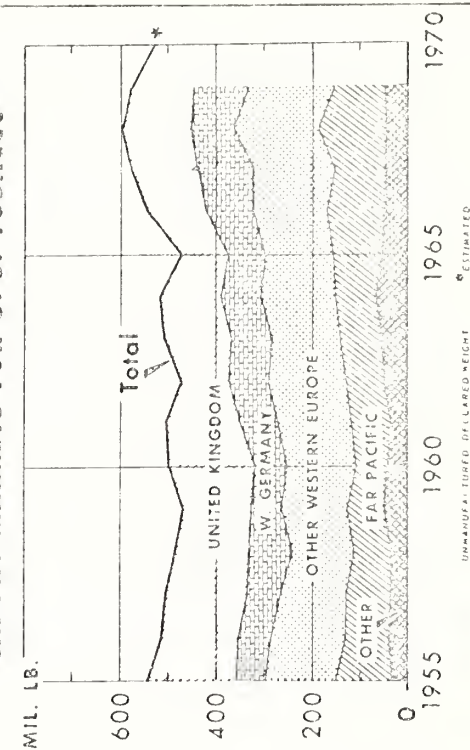
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U. S. IMPORTS OF CIGARETTE TOBACCO



IMPORTS FOR CONSUMPTION * PRIOR TO 1952 PRINCIPALLY SYRIA, RUSSIA, AND BULGARIA
SINCE 1952 PRINCIPALLY YUGOSLAVIA, ITALY, *YRUS AND SERIA
1970 IMPORTS ESTIMATED 1970 AVERAGE VALUES BASED ON 4 MONTHS
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EXPORT MARKETS FOR U. S. TOBACCO



U.S. DEPARTMENT OF AGRICULTURE
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baccos are expected to be 4.2 percent higher than in 1970. The increase results from a rise in the parity index (a measure of changes in prices paid by farmers, wages paid to hired labor, interest, and taxes).

The smallest carryover since 1954 means the supply of flue-cured tobacco is fractionally below last season. Growers sold 125 million pounds more than in 1969. Average yield per acre jumped 12 percent to the third highest on record.

The 1970 flue-cured crop sold slightly below the record-high prices in 1969. At 71.9 cents per pound, auction sales averaged 0.3 cents below the previous season. Most grade averages were higher but quality was not as good as 1969's excellent crop. Growers placed 12 percent of market deliveries under government loan. This compares with 9 percent of the previous year.

Last marketing year, exports of flue-cured (over four-fifths of total U.S. tobacco exports) were 2 percent above the previous season. Domestic use was down 1 percent. Domestic disappearance failed to hold the year earlier level in July-December 1970 and exports were down substantially. Prospects are not favorable for exports to recover, so the season's disappearance may fall around 7 percent short of the 1,200 million pounds in 1969/70. This would bring the mid-1971 carryover of flue-cured up some 50 million pounds from last July's level.

For 1971, the national flue-cured marketing quota of 1,071 million pounds is unchanged from 1970. Under the acreage-poundage program, the base quota plus net undermarketings the preceding year gives an effective quota of about 1,080 million pounds, 10 percent below 1970.

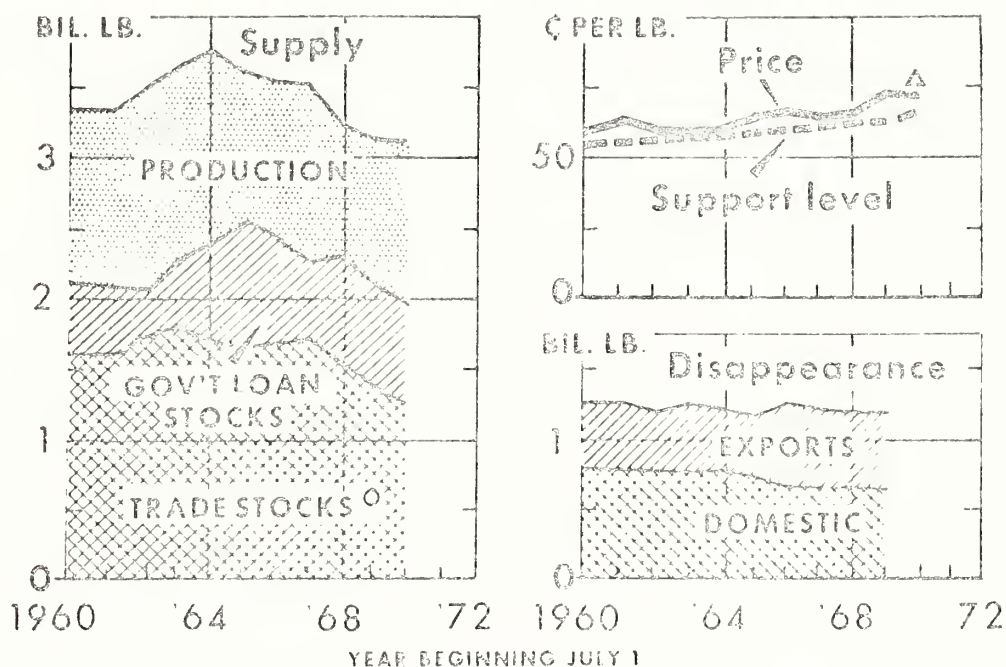
The 1970/71 supply of burley tobacco is about the same as the previous year. Carryover on October 1 was up 2 percent. Despite 9 percent less acreage, another record burley yield brought marketings from last year's crop to within 4 percent of the 1969 outturn. The 1970 crop sold for about 72.1 cents a pound--up 2.5 cents from 1969. With the stronger market, loan placements at 8.4 percent of the crop fell back from the 1969 season, when 27 percent went under loan.

Burley exports gained in 1969/70 but domestic use slipped some with lower cigarette output. With little change likely in cigarette production in 1970/71, domestic burley disappearance could steady. Nonetheless, carryover stocks next October 1 will probably again edge upward.

With a burley supply equal to 3.4 times probable disappearance the marketing quota law requires USDA to cut acreage allotments not protected by minimum provisions at least 25 percent. Legislation has postponed the usual January quota announcement for burley while a poundage control program is considered.

For other tobaccos, the current marketing year's supplies of Maryland, fire-cured, dark air-cured, cigar filler, and cigar binder are smaller than last season. Marketing quotas and acreage allotments for these kinds of tobaccos were announced in January.

FLUE-CURED TOBACCO: SUPPLY, PRICE, USE



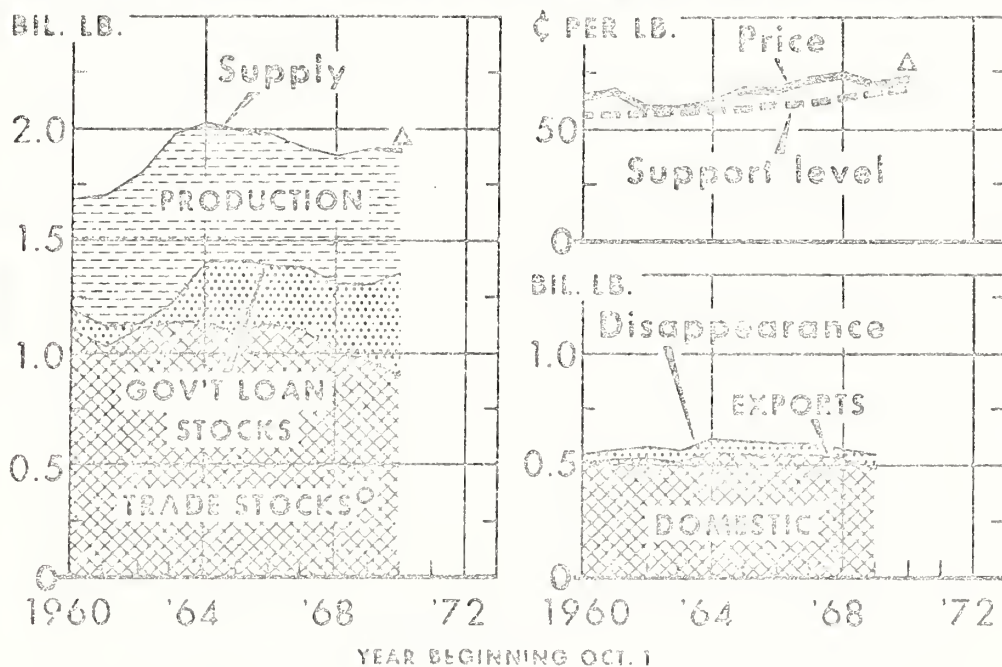
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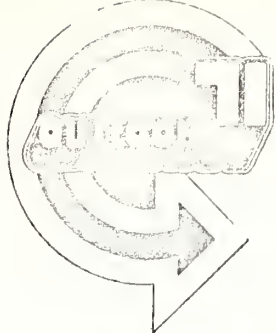
BURLEY TOBACCO: SUPPLY, PRICE, USE



○ MANUFACTURERS' AND DEALERS' △ PRELIMINARY INDICATION

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UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR VEGETABLES AND POTATOES

Talk by Charles W. Porter
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 2:35 P.M., Wednesday, February 24, 1971

GENERAL SUPPLY AND DEMAND PROSPECTS

Canned and frozen vegetable supplies for the 1970/71 season are running moderately less than a year earlier. Potato supplies are record large with most of the increase in the Pacific Northwest; sweetpotato supplies are not greatly different from a year earlier, and a smaller supply of dry beans is available this year.

Demand for fresh and processed vegetables looks strong again this year. As economic activity picks up, disposable income will rise and contribute to a sustained demand for vegetables.

Foreign trade activity in fresh vegetables is highlighted by large quantities of Mexican tomato imports and further increases in cucumbers and peppers. Fresh vegetable exports may approximate 1970. Increasing competition from Mexican supply sources will tend to restrain U.S. movement to Canada, our principal export market. Although export demand holds generally favorable for dry beans and peas, reduced domestic bean supplies will probably keep overseas shipments below the record made in the previous season.

PROCESSED VEGETABLES

Canned and frozen vegetable supplies are moderately less than a year earlier. The slightly larger canned pack was more than offset by a sharply reduced carryover. The 1970 pack of 6 major frozen vegetables was about 6-8 percent less, and the total available supply was further reduced by a smaller carryover. Prices of most canned and frozen items have continued to show firmness through recent weeks, although some discounting of the more plentiful can sizes of certain items has been taking place.

The slight increase in the important tomato crop, and the larger processing cabbage, cucumber and spinach tonnage did not quite offset declines in other leading crops. Production declined for peas, sweet corn, lima beans, asparagus, and beets. Snap bean tonnage was virtually unchanged from 1969.

Despite a 9 percent reduction in harvested acreage, U.S. tomato production was nearly 3 percent above 1969. The U.S. average tomato yield per acre exceeded 20 tons for the first time. The average yield in California was 23.7 tons per acre, and in the next 4 leading States--Ohio, Indiana, New Jersey, and Pennsylvania--yields ranged from 19.3 to 20.6 tons.

Disappearance of processed vegetables---while a little under a year ago---is continuing at a relatively high rate, suggesting that carryovers of most important items this summer will range from light to moderate. Processors will likely be planning for larger 1971 packs. With supplies of canned and frozen peas the smallest in years, materially larger packs probably could be accommodated. Similarly, larger packs of frozen limas and frozen sweet corn could be handled as well, since current stocks of both are substantially less than in either of the past 2 years. However, supplies of pickles, sauerkraut, and possibly beets are large enough to encourage canners to plan to use somewhat less raw product this coming season. For other important vegetables---tomatoes, snap beans, sweet corn for canning, and spinach for freezing---anything more than a moderate increase in production might result in burdensome supplies.

FRESH MARKET VEGETABLES

Winter vegetable supplies are estimated 4 percent more than the sharply curtailed production a year earlier. Materially larger cabbage and celery production are responsible for most of the increase. Peppers, tomatoes, and sweet corn are somewhat more plentiful than the very short supplies available last year, but the estimated 1971 production of each of these 3 vegetables is markedly less than 2 years ago. Lettuce production this season is slightly less than in 1970 and winter carrot production is down 10 percent.

Early and late spring onion acreage is down this year, but growers in the early summer onion States intend to have 2 percent more acreage for harvest this year. All the increase is expected in Texas. This early summer acreage is always much smaller than the important late summer storage crop. Storage stocks of onions the first of the year were 2 $\frac{1}{4}$ percent larger than the small quantity held the same time a year ago.

DRY BEANS AND PEAS

Bean producers planted only slightly less acreage in 1970 but abandonment was heavier than usual, and average yields fell. U.S. production was 17.4 million hundredweight, 8 percent less than a year earlier but the same as 1968. As a result of less acreage and extremely variable and generally unfavorable weather patterns in major producing areas, white bean production fell about a fourth from the relatively large 1969 production. Production of all colored beans except kidneys increased, and total colored bean production rose an eighth. Lima bean production in California was less.

In view of shorter supplies, movement of dry beans through both domestic and export channels will be less this season. Domestic use will probably be down slightly, and exports could trail the record shipments of the previous season. Dry bean exports the past 3 crop years have increased steadily, and in 1969/70, almost a fourth of the U.S. crop moved into foreign markets. But with 1970 world production closer to the average of recent years, American export markets now are likely to find more competition than last year. Shipments to Europe have figured importantly in the gains of recent years. The United Kingdom is our largest overseas customer.

U.S. exports of dried edible beans by
country of destination

Country	Marketing year beginning--		
	Sept. 1967	Sept. 1968	Sept. 1969
	<u>1,000 cwt.</u>		
United Kingdom	632.5	926.1	1,023.8
France	65.8	111.0	434.2
Venezuela	300.4	277.7	434.9
Japan	133.4	431.4	433.5
Mexico	176.5	175.6	389.5
Dominican Republic	111.0	26.5	210.2
Spain	60.9	39.8	207.4
West Germany	16.1	40.0	194.1
Netherlands	47.7	105.6	161.6
Other countries	523.8	636.4	854.5
Total U.S. exports	2,068.1	2,770.1	4,342.7

As is often the situation, there is a wide range in the price of various classes. The more plentiful pintos have been holding fairly steady at about \$9 per hundredweight (Colorado dealer-shipper price basis). This is moderately less than a year ago. On the other hand, both pea beans and great northern are selling well above a year ago, and kidney bean prices again exceed \$20 per hundredweight. With total supplies moderately below a year earlier, prices seem destined to hold firm to strong through most of the marketing season.

Dry pea production in 1970 was more than a fifth less than the record crop a year earlier, but 6 percent more than 1968. According to a recent trade release, combined stocks of commercial and seed peas on January 1 were moderately higher than a year earlier, and prices to growers on January 15 averaged \$4.23 per hundredweight, 4 cents less than a year ago. Exports of dry peas from September to January 1 were 5 percent larger than the comparable period a year earlier. Japan, one of our major customers, has been taking substantially more this season. The 1970 European crop was sharply higher, and production in 19 foreign countries was moderately higher than 1969.

POTATOES AND SWEETPOTATOES

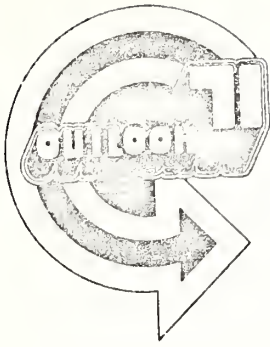
Potato supplies are large again this winter, and on February 1 U.S. stocks were 8 percent above a year earlier. All major producing regions have more on hand, but the increase is greatest in the 8 Western fall producing States.

Through the fall and early winter, processing activity was heavy, but since the first of the year there have been signs that this expansion is easing off. January stocks of frozen french fries were about a fourth more than a year ago. Western processors have been using stock from prior contracts, and are making few open market purchases.

The pack of frozen potato products has risen sharply in recent years. By 1969, it exceeded 2 billion pounds and the 1970 figure will show a further substantial increase. The pack in the first 6 months of 1970 was 1.2 billion pounds, 15 percent above the same 1969 period.

Fresh market potato prices are now substantially below a year ago at all major reporting shipping points. Disappearance of the large 1970 fall crop during January, and for the season to February 1, has been record high. Unload data for potatoes which includes movement to chippers and fresh market outlets was slightly below that of a year earlier.

Sweetpotato harvested acreage last year was the smallest of record--- down to 137,600, 5 percent less than 1969. Record yields brought production back to a 3 percent decline, 14.1 million hundredweight. Prices to growers this winter have been moderately higher than a year earlier. The quality of the crop marketed has been better than average in most major producing States. This month shipping point prices for Porto Rico types have been holding steady at \$4 for a 50-pound crate at eastern North Carolina points. Since the first of the year, trading in Louisiana has been fairly active, even though unload data suggest that U.S. total movement of sweets thus far this season has been moderately less than a year ago. Processing may be less active than last season's canning volume of more than 12 million cases (basis 24/303's). U.S. prices are expected to show some of the usual advance as the storage season progresses. Remaining supplies are probably not greatly different from a year ago.



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UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

OUTLOOK FOR LIVESTOCK AND MEATS

Talk by Donald Seaborg
Economic and Statistical Analysis Division
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 8:45 A.M., Wednesday, February 24, 1971

Trends which have been evident in the livestock economy for several years continued in 1970. There was a moderate increase in beef production, another increase in our beef cow herd, a further decline in veal production, and another decline in the sheep and lamb inventory. The overriding development in 1970, however, was the sharp cyclical bulge in hog slaughter.

Meat supplies were record large in 1970 and probably will be even larger in 1971. The increase in supplies in 1970 was large enough to outpace the increase in population, so red meat consumption per person also reached a new high last year, and is expected to do so again this year.

This is, in a sense, a familiar market situation. Every year since 1967 except in 1969, both total meat consumption and consumption per person have been at new record highs. In 1969 total consumption increased but not by enough to offset the population increase. Consumption records have been set in many earlier years too, most recently in 1962, 1963, and 1964.

Such increases in meat production and supplies are in response to the expanding market for meat. Growth in the market for meat has been due partly to population increases and partly to increases in consumer income and preferences for beef. Although considerably larger quantities of meat can be sold now for higher prices than was possible some years ago, record supplies call for restraint and caution by producers in planning their output in order to avoid serious price declines. This is particularly important this year, because pork is accounting for so much of the increase in meat supplies.

We look for a moderate increase in beef production this year of around 2 percent, with prices not much different than in 1970. However, pork production probably will be up 8 percent or more, and hog prices will average moderately under 1970 prices when they were about \$22 per 100 pounds at 7 markets.

This year the increase in pork supplies may more than double the increase in beef supplies. On a per person basis, we think red meat consumption will increase around 5 pounds over the 185.5 pounds consumed in 1970. Pork consumption--although about half as large as beef consumption--will account for about three-fourths of the increase and beef for the rest. This would raise consumption of pork per person more than 4 pounds over the 65.8 pounds of 1970, and would make it the largest since 1952.

We look for consumer demand for meat to continue strong this year. The population will continue to increase, and there should be a moderate gain in real output of goods and services. Rising wage rates, some further reduction in taxes, and increases in transfer payments will lead to further gains in consumers' after-tax income, of perhaps 7 percent over 1970. If these gains are realized, meat especially will share in larger outlays for food.

Cattle

The number of cattle slaughtered in 1970 fell slightly for the first time since 1959. However, beef production was larger last year than in 1969, and a record. The increase in beef production was due to heavier weights of fed cattle and a change in the slaughter mix. Fewer cattle went to slaughter--more fed cattle but fewer nonfed steers and heifers, and cows.

Commercial cattle slaughter totaled 35.0 million head in 1970, compared with 35.2 million in 1969. Calf slaughter was down to 4.1 million head from 4.9 million in 1969.

Commercial beef production rose to 21.5 billion pounds in 1970, up 3 percent from 21.0 billion pounds in 1969. Beef imports also were larger. Thus, beef consumption averaged 113.4 pounds per person, up from 110.5 pounds in 1969.

The capacity to produce beef is larger again this year. The total inventory of cattle and calves on farms on January 1 was 114.6 million head, 2 percent more than the year before. Beef cattle were up nearly 3 percent and accounted for all of the increase. Dairy cattle were down about 1 percent.

The feeder cattle supply is 3 to 4 percent larger than a year ago and large enough to support further gains in fed cattle marketings in the months ahead.

The outlook is for fed cattle marketings this winter and next spring to be a little smaller than marketings last fall and to be close to those a year earlier. The number of cattle on feed on January 1 in the weight groups that usually reach slaughter finish in the winter was down 5 percent. However, since cattle will be shipped a little sooner this year and at lighter weights, marketings may not be much different this winter than last. Also, there was little change on January 1 in the combined total of steers and heifers on feed in weight groups that supply the bulk of spring marketings.

Fed cattle marketings in the second half of 1971 are expected to be moderately larger than a year earlier. The feeder cattle supply is currently larger than a year ago and feeders probably will seek to maintain full use of lot capacity in 1971 (even though growth in cattle feeding may have slowed temporarily, due to higher costs and relatively low returns). Placements in the spring and summer likely will remain large and will maintain a high level of fed beef production in the second half. However, prospects for 1971 feed grain output and for feed costs will strongly influence cattle feeders' attitudes and plans for feeding cattle in the months ahead.

Fed cattle prices have recently strengthened from their early winter lows. Prices may slip from early February levels but then should remain firm in the spring, averaging near prices last spring when Choice steers at Omaha were around \$30 per 100 pounds.

Cow slaughter this winter and spring will likely run under or near a year earlier. Feeder cattle and calf prices are relatively favorable. Therefore cowmen are not likely to significantly increase culling rates of breeding herds. Some rise in slaughter in the second half is likely because of increases in the size of the cow herd in the past several years.

Cow prices in 1970 averaged \$21.30 at Omaha, about \$1 above 1969 and the highest since 1951. Most of the price increase was in the first half.

The seasonal rise in cow prices into spring likely will be smaller than last year's \$3 advance. The sharp increase in pork output will limit price strength in the coming months. Also, large output of fed beef and continued large imports of beef will add pressure on cow prices as well as other livestock classes.

Hogs

Hog slaughter a year ago was cyclically low in the winter and early spring and hog prices were strong. Hog prices had generally risen throughout 1969 and continued upward in early 1970. In February last year, prices of barrows and gilts at 7 markets were \$28.25 per 100 pounds, highest since September 1948. Producers responded, as would be expected, by increasing farrowings. However, it was not until June that hog slaughter began to fully reflect increases that had taken place in late 1969 and later farrowings. Slaughter in the first quarter was down sharply--lowest first quarter since 1958, except for 1966. In the first 5 months last year, hog slaughter was 8 percent below a year earlier. Typically, hog prices rose more than slaughter declined, and in the 5 months averaged 24 percent higher than a year earlier.

But from June on, hog slaughter exceeded year-earlier levels, and at the end of 1970 slaughter was running about a quarter larger than the year before. And typically, hog prices fell more than slaughter increased. In December, barrows and gilts at 7 markets averaged \$15.67 per 100 pounds, 42 percent below the year before.

Ironically, concern for the corn crop because of southern corn leaf blight and poor growing conditions in some areas triggered a sharp rise in corn prices last summer about the time that hog prices were beginning to slide. This put hog producers in an unusually difficult position. The hog-corn price ratio declined from an all-time high of 24 in February 1970 to just over 11 at the end of the year, the lowest ratio since the summer of 1956.

Producers increased the number of sows farrowing throughout 1970. The June-November pig crop was 18 percent larger than a year earlier. As a result, hog slaughter will continue much larger than a year ago through spring. Prices have strengthened somewhat recently from the lows in late 1970. However, prices may edge lower before advancing in the spring as slaughter falls off seasonally.

Hog producers are apparently beginning to reduce their output. Corn Belt producers indicated on December 1 that they expected to expand December 1970-February 1971 farrowings by 6 percent, but to reduce March-May farrowings 6 percent. Such a reduction in late spring farrowings would cut hog slaughter next fall below a year earlier.

On the basis of the continued squeeze on returns to hog producers in the first half of this year, farrowings probably will be down from 1970 the rest of 1971.

Sheep and Lambs

Consumption of lamb and mutton totaled 3.4 pounds per person last year, nearly the same as in 1969. Slaughter of sheep and lambs was down about 1 percent in 1970, and imports of lamb and mutton declined.

The sheep and lamb inventory continued to decline in 1970 because of the smaller 1970 lamb crop and because slaughter was large in relation to the beginning inventory. On January 1, 1971, the number of sheep and lambs on farms stood at 19.6 million head, down 4 percent from the year before and lowest on record. The number of stock sheep, 16.9 million, was down 3 percent. Therefore, the 1971 lamb crop is expected to be reduced, and consumption of lamb and mutton likely will decline further this year.

In 1970's first quarter, lamb prices were higher than a year earlier, but during the rest of the year were \$1 to \$4 per 100 pounds lower. For the year as a whole, Choice slaughter lambs at San Angelo averaged \$27.45 per 100 pounds, \$1.35 less than in 1969.

This year sheep and lamb slaughter is expected to run smaller than a year ago. Slaughter was up in January, but late winter marketings likely will be reduced because of the smaller number of lambs on feed at the beginning of the year. Marketings during the balance of the year also will be down because of the expected smaller lamb crop.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

MANAGEMENT DECISIONS REGARDING FARM CHEMICALS

Talk by Dr. Ned D. Bayley
Director of Science and Education
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 9:15 A.M., Thursday, February 25, 1971

According to a variety of old jokes, it is not the hard work we mind so much as the difficult decisions. And decisions are the constant companions of management.

Nothing is more difficult and more confusing today to the management of the Food and Fiber Industry than decisions concerning farm chemicals. That's particularly true of pesticides, to which I address myself, principally, this morning.

The basis of confusion about pesticide decisions is fear of the unknown in our future and apprehension that the worst will happen. Therefore, I feel that the most helpful thing we can do at this time is to put the spotlight of truth on the pesticide situation as we find it today . . . see where the U.S. Department of Agriculture stands . . . consider the options and alternatives in making decisions . . . and estimate what some of the consequences of the decisions might be.

I will discuss decision-making in these areas as it affects farmers, pesticide manufacturers, government agencies, and the public. Since all of us in the first three categories are also members of the public, let's start there.

The primary concern of the general public about pesticides is the hazard to environmental quality and the consequential effect upon man and animal life. This is particularly true in the United States and other developed countries. The situation is not as clear in developing countries where a higher priority must be given to producing enough food for people and protecting human health. It is safe to assume that as long as economic resources are available, decision makers in the less developed countries will reflect the interest of their people and turn to pesticides to maintain and increase crop yields. The choice is understandable when the alternatives are marginal yields, unreliable food supplies, the prospect of mass starvation, and widespread crippling diseases.

Developed countries -- where the consequences are not nearly so dire -- are now committed to imposing strict controls over the use of chemicals in agriculture. The decision is based on public concern and a growing body of data concerning potential environmental hazards, particularly from persistent pesticides. Most of the data involves DDT, and occasionally other organochlorine insecticides.

Residues of DDT have been recorded in biota in all parts of the world, sometimes many miles from any known use; for example, in tissues of polar bears and other wildlife in the Arctic. We still don't understand fully the mechanisms that transport DDT and its relatives about the biosphere. But we do know that they are distributed widely in the biota.

Damage to wildlife was recorded soon after persistent pesticides first came into general use. Direct mortality of some birds, mammals, and fish followed application of organochlorine insecticides at heavy rates over large areas.

Qualified scientific observers have noted additional reactions of nontarget organisms to these pesticides in the environment. But species react differently to specific pesticides. For example, DDT can cause thinning of eggshells. The thinned shells do not give sufficient protection to the developing embryo, and the eggs frequently break prematurely. The hatch of some predatory birds, including falcons and bald eagles, can be -- and is at times -- severely reduced. That factor, along with other more serious conditions such as the restriction of habitat, is threatening some of our bird species.

Pesticides from the air, water, and soil may be absorbed and concentrated in the bodies of organisms. The concentration in the tissue is frequently increased as one species feeds on another and passes the pesticide from one link to another one higher in the food chain. In this sequence some predatory birds may be exposed to levels several thousand times higher than the concentration in the physical environment.

Persistent pesticides create problems for agriculture, too. One of the first to be recognized in the use of the most effective organochlorine pesticides was the development of resistance by insect pests.

Resistance to DDT was most spectacular. The repeated and widespread use of the insecticide created an intolerable environment for many species of insects. Through survival of the fittest, some species evolved a stronger resistance with each succeeding generation. Finally, certain insects became almost impervious to the originally potent effects of DDT. Some 220 or more species of insects and acarines in various parts of the world have developed resistance to one or more groups of insecticides.

The organochlorine insecticides are considered to be "broad spectrum" because they do affect many organisms other than target pests. At the same time, the qualities of "broad spectrum" and persistence are not all bad. The lasting residuals provide control of target pests over relatively long periods of time and decrease the need for reapplication. The use of more specific chemicals requires a different pesticide for almost every different pest that attacks a given crop or area. Furthermore, most of the specific insecticides in use today are more acutely toxic to man. For instance, DDT is relatively safe for human beings. There is no clinical evidence of harmful effects on man, other than by accidental, massive ingestion. But methyl parathion, the insecticide now being used frequently to replace DDT, is highly and immediately toxic to human beings. Several deaths have recently been attributed to a closely related pesticide, ethyl parathion -- particularly among applicators who have changed from a relatively safe chemical to one that is highly dangerous to use.

We may find that the shift from broad spectrum, persistent pesticides to specific, short-lived chemicals may have two adverse effects: (1) Greater hazards to those who apply pesticides and to the people who come in immediate contact with treated areas; and (2) the need for more pesticide products applied more frequently.

Be that as it may, the period of unrestricted heavy applications of persistent pesticides is at an end in the United States. That decision has been reached. Further than that, methods of application for all pesticides are being substituted for persistent pesticides. Because of these changes, the most serious hazards to environmental quality from pesticides should be reduced. The interest of the public -- and that means all of us -- in the environment is being better protected in that sense. But the protection involves continuing decisions.

Let's see how these decisions can affect agricultural producers and pesticide manufacturers.

The first questions farmers ask are "Will I have pesticides to protect my crops and livestock? How will the change in the pesticide situation affect my cost of production?"

For most agricultural intents and purposes, DDT, aldrin, dieldrin, mercury, arsenic, and 2,4,5-T have been severely restricted. Others will probably be affected. But in the interest of simple discussion, let's look first at DDT.

In general there are "substitutes," registered and available, for almost every use of DDT. At the time these were registered, they were found to be safe and efficacious for the purpose stated. So we could assume that these substitutes will be reasonably effective.

But we must also face the full truth. Experience has shown that most of these alternate materials are not as efficacious as DDT for most uses. Some are not effective against certain insects and, therefore, are not suitable substitutes. In some instances the "substitutes" have a much higher acute toxicity. Parathion, as I mentioned, is an example. These highly toxic materials may be used -- carefully used -- in agriculture for some pest problems. They would never be recommended for our use around the home.

In almost every instance, the cost of alternatives will be higher. DDT is about 18 cents a pound. The substitutes would generally run into dollars a pound.

The Economic Research Service has made a study of economic consequences of restricting the use of organochlorine insecticides on selected crops in the United States. You will notice the basis of the estimates is on "restricting," not "prohibiting." The study covered cotton, corn, peanuts, and tobacco. These crops have traditionally accounted for 87 percent of the organochlorine insecticides used in the United States. The study was based on farm use of insecticides for 1966, the most recent data available.

The value of using organochlorines on these four crops is without question. These chemicals provide the only effective control for certain insects at this time. But the ERS study shows that the use of most of these insecticides could be selectively restricted over a period of 2 to 3 years with a modest increase in costs to farmers.

More than three-fourths of the 72 million pounds of organochlorines used by farmers on the study crops in 1966 could have been replaced by other insecticides without affecting production. However, costs for insect control on the crops would have increased \$2.23 per acre treated, for a total of nearly \$27 million.

Forty-two million pounds of organophosphorus and carbamate insecticides would have been required to replace approximately 55 million pounds of organochlorines -- mainly DDT, toxaphene, and aldrin. The substitutes would have been methyl parathion, diazinon, and carbaryl.

For effective insect control on cotton and corn, 17 million pounds of organochlorines would still have been needed. On cotton, some of the substitute chemicals would have required supplementation. On corn, the organochlorines were the only effective insecticides for certain insects.

The estimates show that costs of replacing the organochlorines on cotton, corn, peanuts, and tobacco in 1966 would be the maximum for the foreseeable future. In fact, it was estimated that the cost of restricting organochlorines in 1969 would have been about 18 percent less than in 1966. The decrease reflects trends in insecticide usage and changes in acreages.

The consequences of restricting organochlorines extend to the pesticide industry, consumers, and the environment. In 1966, some pesticide manufacturers would have gained. Others would have lost. But total industry sales of insecticides would have increased. Most of the increased cost of insecticides would probably have been absorbed by farmers. But, in the long run, we could expect some increase to show up in food and fiber prices -- to be weighed against the protection gained in environmental quality.

Another study was made on the cost of prohibiting the use of phenoxy herbicides -- primarily 2,4-D and 2,4,5-T -- on 62 million acres of cropland. This use involves 44 million pounds of the herbicides. The immediate effect would be an increase of \$290 million in production costs to farmers. In addition, farmers and their families would have to work 20 million more hours to control weeds without these herbicides.

We face a complex socio-economic problem in producing cotton without the organochlorine insecticides and the herbicides now widely used. About 70 percent of the DDT used in this country has been on cotton. Without it, growers will have serious trouble controlling several major insect pests. Severe weed infestations in most of the cotton producing areas will be more difficult to control without the use of the phenoxy herbicides.

Approximately 280,000 cotton farms are in three regions of the United States -- Southeast-Appalachia, the Delta, and the Southern Plains. In all three of these regions the net average income of farmers is less than \$5,000 a year and below the average of all farmers in the United States. In the Delta, cotton is the largest single source of income for farm people. In the Southern Plains, cotton is the second most important single source of farm income. And cotton is important to income in the Southeast Appalachian region. These producers could not continue to grow cotton with the low yields that would result without pesticides. Many of them have few alternatives to producing cotton in order to support themselves.

Pesticide manufacturers are also placed in an increasingly difficult position, as continuing decisions restrict pesticide uses. They cannot plan their operations effectively because there is no assurance of future markets. If a specific pesticide product is prohibited or restricted, a manufacturer can be left with unreasonable inventories and expensive losses. As a result, the industry may feel unjustified in spending the dollars it takes for research and development to produce new products. If industrial research and development are seriously reduced, the burden of finding newer, better, safer pesticide products must be absorbed somewhere else.

If the pesticide industry reduces the products available to agriculture for pest control, reduced yields per acre will mean more land required to produce food and fiber. When agricultural production requires more land, that increases the competition with urban and transportation needs, as well as with recreational and green space. Though this is not a current problem, the competition may reach serious proportions in the future.

On the other side of the coin, the continued use of persistent pesticides in agriculture jeopardizes a portion of our export markets. Some countries have more stringent tolerances than ours for pesticide residues. That means we must reach understandings with these countries in order to continue trade in agricultural products.

The effect on the world agricultural market of continuing changes in pesticide decisions is important to the United States. This year our agricultural exports will probably be in the neighborhood of \$7 billion and our imports over \$5 billion. The export market plays a vital role in our domestic agricultural economy. The products from 1 out of every 5 acres cultivated in this country are for export.

In this new pesticide picture I have been describing, the U.S. Department of Agriculture is in a different position than we have been in before. For 60 years the Department was charged with administering the law that regulates pesticides -- the Federal Insecticide, Fungicide, and Rodenticide Act of 1947 and its predecessor passed in 1910. In December the new Environmental Protection Agency began administering FIFRA, along with other research and regulatory activities of the Federal Government concerned with environmental quality. We have been working closely with the new agency during the transfer of authority, and we will continue to work with them in coordinating our related activities.

The Congress is considering legislation now that would replace FIFRA with a more stringent law, providing closer controls and broader authority for cancellation and suspension of pesticide registration. It is called the Federal Environmental Pesticide Control Act of 1971. Hearings by the House Agriculture Committee began this week on H.R. 4152, the House version of the proposed law. The Senate is considering the same proposal as S-745.

Our Department is supporting the legislation as a progressive step forward.

Since this legislation would affect all those concerned with pesticides, I would like to mention, briefly, some of the changes it would bring about.

In the first place, all authorities contained in the bill are given to the Administrator of the Environmental Protection Agency.

In defining terms, an article is considered misbranded if, when used as directed or in accordance with common practice, it is injurious to man and the environment. In determining whether a pesticide is injurious, the Administrator is directed to consider both the short-term and long-term effects on man and the rest of the environment. He is also to consider the pesticide's persistence, degradation, and potential for movement and accumulation in the environment.

Protection of health and environment is defined to mean protection against any injury to man and protection against any substantial adverse effects to environmental values. In making a judgment, public interest must be considered. The term "public interest" means a weighing of the probable benefits derived from the use of the pesticide with the risks inherent in its usage.

When registering a pesticide, the Administrator is required to designate it as belonging to one of three categories: (1) for "general use"; (2) for "restricted use"; or (3) for "use by permit only."

As the term indicates, the pesticides for general use would be available to anyone who wants to buy and use them.

A pesticide for restricted use can be used only by or under the direct supervision of an approved pesticide applicator. The applicator must have obtained a State license based upon demonstration of competence, according to standards approved by the Administrator.

A pesticide designated for use by permit only can be used only with the approval in writing of an approved pest management consultant, who has obtained a State license meeting standards approved by the Administrator.

The Administrator is given up to 4 years to fully implement the system of classifying pesticides. The major burden of licensing approved pesticides applicators and pest management consultants will fall on the States, and some time will be required for the States to train and certify enough of these key people.

The appeals procedure for an applicant whose registration is refused is changed from current authority by deleting the opportunity for the applicant to take the matter to an advisory committee. The applicant may request a public hearing on the matter, and may then appeal in the courts.

If it is necessary to prevent an imminent hazard to health or the environment, the Administrator may suspend the registration of a pesticide. Such a suspension is effective immediately, but is subject to the same appeals process as a cancellation.

The Administrator is also authorized to stop sales of a pesticide if he believes that pesticide is in violation of the Act. He may also confiscate a pesticide if it is adulterated, misbranded, mislabeled, or unregistered.

Knowing violators of the Act are subject to criminal penalties of no more than \$25,000 or imprisonment for not more than 1 year or both. All violators are subject to civil penalties of not more than \$10,000. The provision for civil penalties is new, and the fine for criminal violation is increased.

The Act requires that each establishment manufacturing or processing pesticides must register with the Administrator. These establishments must provide him with information on the types and amounts of pesticides being produced, . . . the distribution or sale of such pesticides . . . and, when requested by the Administrator for the purpose of recalling a product, the name of each recipient of his product. There are provisions for entry and inspection of factories registered under the Act.

The legislation requires that exporters must file with the Administrator a certification that the article exported is in compliance with the laws and regulations of the foreign country to which it is being sent.

States are not precluded from imposing stricter standards or added requirements . . . but they may not permit any sale or use of pesticides which is prohibited under the authority of this Act.

Since the legislation is still being considered by the Congress, we do not know what additions, deletions, or other changes may be made. But these are some of the major provisions at present.

The Department advocates concrete measures to protect international trade in agricultural products from the difficulties created by pesticide regulations. We are taking steps in this direction through the Organization for Economic

The OECD nations together account for approximately three-fourths of world agricultural imports and about one-half of the world agricultural exports. In 1969 our U.S. exports of agricultural products to OECD countries were valued at \$3.7 billion, which was over one-half our total agricultural exports that year. Our imports from OECD nations were worth \$1 billion, or about 22 percent of our total imports of agricultural products.

A recent survey of pesticide regulations in OECD countries showed tremendous variations from country to country. And we are sure that further restrictions on the use of pesticides will not develop uniformly. Therefore, there is an urgent need to cooperate and consult so that all concerned will be aware of the potential competitive impact of changes in pesticide regulations.

The United States Delegation has proposed a consulting process on controls over pesticides and other materials affecting man and the environment. We are suggesting that member governments notify and consult each other through OECD about intended national measures that would affect the interests of other countries. We have proposed that a special meeting on pesticides be held to discuss current national policies and procedures; to assess broad policies for decision making, and define the scope for international action; and to establish a procedure for continuing notification and consultation concerning pesticides. A session of the Environment Committee was held in Paris a few weeks ago to explore this proposal in some detail.

On the domestic front, our Department is expanding a cooperative program with the States for managing the use of pesticides with greater care. The objective is to reduce the quantity of pesticides used in agricultural production and -- at the same time -- achieve a given level of protection against pests and diseases. We are trying to develop a better understanding of the overall ecological effect of pesticide use. The program also provides a means of reducing the potential hazards of pesticides being applied by unqualified persons.

The Extension Services are providing training sessions for farmers. In addition, the Department is cooperating with State Departments of Agriculture in an information effort to warn pesticide users that safe and effective use depends upon following instructions on the label. We started pilot programs during the fiscal year 1971 to reduce the pesticide burden on the environment and the adverse effects of pesticides on nontarget organisms.

These pilot programs are being conducted cooperatively with State Departments of Agriculture and the Cooperative Extension Services. They are being carried out first in cotton and tobacco areas because these crops normally get high rates of pesticide application. If the programs are successful in materially reducing the quantity of pesticides required to achieve the given level of pest control, then the pilot tests will be pushed into new areas.

We expect to take 3 to 5 years to demonstrate the value of the concept on a national basis. At the end of that time, we hope that the major responsibility for the ongoing programs will be assumed by producers or by cooperative and private organizations.

The heart of the program is the use of paid insect scouts during the pest season. These scouts are trained to determine when insect populations in a given field reach levels at which economic damage to the crop is imminent. The findings are reported to the producer, along with detailed information on recommended control measures.

We hope that in due time, as more information is developed through research, the scouts will be in a position to recommend entire integrated systems of control. Integrated control is a compatible system of insect control in which various methods are used -- in proper sequence and timing to be most effective. By effective I mean giving the best possible pest control with the least hazard to man and the environment.

We are not yet at the stage where we can make recommendations on integrated systems for the control of all pests. Too much is still in the realm of the unknown about plants and insects and their interrelationships. But we're working on it. We're working also through research in such fields as resistant crop varieties, biological controls, insect sterility, and attractants and hormones. These methods, used in conjunction with pesticides, should provide our best answers on integrated control systems.

Even now, with current control methods, remarkable progress in pesticide management is being made with the scouting system. Arizona has conducted an active and widely discussed program for the past 2 years; and they are making good progress. Last year, under State supported programs, Alabama had 30 farmer-employed scouts in cotton areas; Mississippi had 24; and Arkansas, 154.

Scouts have been operating in Alabama cotton fields for the past 9 years. During that time, scouted cotton has averaged 200 pounds more lint an acre than cotton not scouted. On that basis, growers feel that it is well worth \$1.00 an acre for the season to pay for a trained scout's report every week. These reports tell him such things as when insect build-up is great enough to warrant starting a control program . . . how to protect beneficial insects . . . when to expect "hatch out" of boll weevils or bollworms . . . and how long to continue the control program in the fall.

One Alabama farmer found that by following his scout's advice to delay his usual starting time for insect control, he saved the pesticide equivalent of spraying 355 acres. That one saving amounted to enough in dollars to pay the cost of the scout for the season. It also protected the environment from the effects of that much pesticide.

The scouts, too, find the pay incentive of \$1.00 an acre attractive. They are trained by the State University on public funds. A veterinary medical student at Auburn University said that scouting cotton was the best paying summer job he had ever found. During his third year on the program, he scouted 2,000 acres for seven growers, all within 10 miles.

These are some of the important new incentives we need. We must explore the possibilities of developing other incentives still further. We must demonstrate the value and stability of new incentives to growers and encourage them to make changes in old and accepted customs.

It will take change to adapt to the pesticide situation successfully . . . change not only by producers, but also by industry, and by State and Federal agencies. But change is not new in the pesticide picture. We went through a series of changes in adapting to the problems of insect resistance. We've been through constant change adapting to the many new pesticides introduced during the past 25 years.

Our changes in this new era will be different . . . both in degree and in kind. In the short run, the need for adjustment will challenge the ingenuity of farm management . . . to substitute inputs and practices, with a resulting rise in cost of production to keep increases to a minimum and at the same time to meet requirements for quantity and quality. It will challenge the ingenuity of the pesticide industry to make quick shifts in their production plans and in programs of research and development . . . and still provide safer, better pesticides. It will challenge the ingenuity of government agencies to administer laws and regulations from a basis of scientific fact and objective reasoning, with due account for both social and environmental values . . . to develop new technology and new technical assistance programs that will help to bring all concerned through this period of adjustment.

In the long run I believe agriculture can emerge, as we did from the "dust bowl days of the thirties" -- with new practices that will protect the environment and with continued improvements in efficiency. This will be greatly increased in probability if we develop and utilize the new technology needed for making the adjustments.

PANEL DISCUSSION: OUTLOOK FOR THE FOOD AND FIBER INDUSTRY*

Dale C. Dahl**

The great revolution in the retail farm supply structure is now past history. Traditional independent and cooperative outlets were challenged by the development of manufacturer-owned (integrated) retail units. As a result all of the farm supply industries freshly sought an answer to the question: Are we meeting the demands of farmers in the most effective manner? We heard a great deal about complete agricultural service centers, about highly specialized anhydrous ammonia outlets and for a substantial range of product and service-dispensing retail units serving farmers needs between these extremes.

In the midst of this diversity of retail outlet type, a commonly expressed question was: What does the future hold? Will farmers of the future be supplied by one type of outlet rather than another? I wish to suggest to you this morning that the diversity in farm supply retailing will continue for some time.

For convenience, manageability and aggregate policy value we speak of the demand for an input like fertilizer. Or we may wish to define this product more narrowly (demand for anhydrous, etc.). But usually we do not think in such broader terms as the demand for a "fertilizer program". Yet you and I know that many farmers buy

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** Professor, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, Minnesota.

fertilizer in context of a complete servicing program -- farm management services are provided to help farmers decide on crop production, soil tests are made, fertilizer levels recommended, and the fertilizer is delivered and applied. The farmers who buy their fertilizer this way clearly represent an extreme on a spectrum of product-service demands for fertilizer. The other end of this spectrum might be represented by the farmer who buys his nitrogen at the lowest possible cost, and picks it up, and applies it himself. Similar diversity in demand exist for other inputs.

These demands are further segmented by product differentiation due to brand names and "special secret formulations". And true to the market patterns associated with monopolistic competition, product or outlet loyalties exist and a range of prices are paid for essentially the same product.

The severability of the demands for certain farm inputs largely explain the continued existence of diverse retail structures. The continuance of such a structure would have to be justified by the projection of this demand segmentation. This leads us to the question: What are the primary forces that create different expressions of demand for purchased inputs by farmers? Much of the difference can be explained by variations in (1) opportunity costs and (2) farmer knowledge.

Opportunity Costs

Whether a farmer has an input like feed delivered to his farm or picks it up clearly depends upon several things: (a) availability of a truck, (b) immediate alternative uses of his time, (c) joint decisions

(like picking up a machine part) or (d) it may be a result of a more general decision to not concern himself with feed pickup as a general practice. Viewed in the broader context, he has made a long run decision to specialize his time and resources on tasks other than feed delivery. Given that farmers value their time differently, that these opportunity costs vary over the year and by size and type of operation, some diversity in product-service demand will continue to exist.

Farmer Knowledge

In assessing the role of knowledge in the purchase of farm supplies, it is convenient to categorize it as (a) technical and (b) market knowledge. U.S. farmers are noted for their technical competency but, of course, technical knowledge about farming is not complete. There is still a "mystery" about feed formulation, for example. Every feeder (and certainly every feed manufacturer) has his own theory of what should be fed and in what quantities. I doubt if this uncertainty will be allayed in the near future.

Without a "market news" service on the input side, price information on farm supplies must be sought out by each farmer. This imposes a "cost of search" on the farmer, which interrelates with his opportunity costs and technical knowledge. In a market that emphasizes non-price competition, information about prices is not difficult to obtain but is difficult to assess. I do not see this market knowledge factor changing much in the years ahead.

In sum, opportunity costs and inadequate knowledge will encourage the continued segmentation of demand for farm supplies. In turn, I offer you the outlook for a highly diversified retail farm input structure.

UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service

Thor-Manley Papers: Comments

Talk by Kenneth R. Farrell
University of California
Berkeley, California

at the 1971 National Agricultural Outlook Conference
Washington, D.C., 11:45 A.M., Thursday, February 25, 1971

In general, I agree with conclusions concerning directions of the food and fiber industries suggested by Thor and Manley--those directions being toward industrialization of food and fiber systems.

There can be little doubt that some sectors of agriculture have already moved substantially in that direction through various types of horizontal, vertical and conglomerate integration the effect of which, as Thor has said, has been to reduce the number of independent decisionmaking points in the system, abbreviate or streamline the process of marketing and generally shift the emphasis from marketing commodities to marketing food and related services.

Along with this have come enormous expenditures for product and service development, the proliferation of brand-differentiated, advertised products, packaged in a myriad of forms designed to capture the food dollar of affluent, convenience-seeking consumers.

The simple concept of food as staple, basic commodity, of a sovereign consumer with clearly defined preferences and demands from which demand at various stages of the marketing-production processes could be derived is being cast aside by an industry seeking to create consumer demand for differentiated products, then tailoring the marketing and production processes accordingly--just as television sets, toothpaste and automobiles are produced and marketed.

Such systems cannot be constructed and maintained under highly uncertain conditions of raw production supply; hence, the tendency to coordinate in one manner or another farm production phases of the system with marketing and sales functions. This tendency in turn is inducing great stress in organizational configuration throughout the industry.

Interrelated with reinforcing these changes are the imperatives created by science and technology at the farm level and all that this implies in terms of capital needs and use in farming, size or scale of operation, management, use of labor and other resources in farming.

The stage of industrialization and rate of further industrialization are highly varied within the food and fiber system--from the nearly complete industrialization of the broiler industry to the still extensive, loosely coordinated systems for producing wheat. Yet, all sectors seem to be affected to some extent.

Projecting these trends for a decade or more suggests continued rapid growth in capital requirements in agriculture, continued growth in farm size and continued decline in numbers of farms and farmers. In turn, these projections raise many basic questions for each of us, for those in farming and for the public at large.

At issue are such basic questions as who will control farming? How will efficiency and other elements of market performance be affected by industrialization? How will returns to resource owners be distributed? How will rural communities be affected? How will consumers and consumer choice be affected? What kinds of public policies and programs will be needed to shape or constrain potential changes? What will be the role of publicly supported research and extension in an increasingly concentrated, industrial agriculture? What, really, can farmers themselves do today to shape instead of merely being shaped by the technology-capital-industrialization syndrome? Thor has outlined four alternative structures-- are these attainable? How would farmers and consumers be affected? If market power is to be developed by farmers through bargaining, through cooperatives or government enabled programs, how will performance of the systems and distribution of incomes be affected? How much market power do cooperatives have? How much should they have?

Frankly, we in research and extension have been somewhat myopic in looking at the food and fiber industries, the changes occurring, their causes and where they seem to be taking us. We have tended to stay with convention, to study that which is comfortable and noncontroversial: to teach much what is "conventional wisdom"; to stop short of meaningfully engaging the kinds of policy questions emerging in the food and fiber industry.

I found myself in agreement with the comments of A. C. Hoffman: "Perhaps the greatest need is for perceptive description and qualitative analysis of what is actually going on in American agriculture, and why. There is far more information of this sort today in sources like Fortune Magazine and the Wall Street Journal than in the American Journal of Agricultural Economics, and this is unfortunate." 1/

The Thor and Manley papers have touched on some major questions concerning agriculture and its future. Are we prepared to meaningfully engage the questions?

1/ Hoffman, A. C. Trends in the Food Industries and Their Relationship to Agriculture, in Emerging and Projected Trends Likely to Influence the Structure of Midwest Agriculture, 1970-1985. Agricultural Law Center, College of Law, University of Iowa, Iowa City, June 1970. pp. 86-103.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

FABRIC FLAMMABILITY

Talk by William M. Segall
Carpet and Rug Institute
at the 1971 National Agricultural Outlook Conference
Washington, D.C., 8:45 A.M., Thursday, February 25, 1971

The history of fabric flammability -- and of burn injuries caused by fabric flammability -- goes back a long time. In 1392, during the reign of Charles VI of France, an accident took place involving costumes being worn by courtiers entertaining the king, which were ignited by a candle. The resulting tragedy so impressed the horrified onlookers that the incident has come down in recorded history.

The July 1861 issue of Scientific American reported the death of Mrs. Henry Wadsworth Longfellow, wife of the poet, whose dress was ignited by the candle over which she was melting wax to be used in sealing envelopes.

In more recent years, some recognition had been given to the hazard of flammable drapes and other furnishings in places of public assembly. Various municipalities, spurred on by such tragedies as the Boston Cocoanut Grove fire in 1942, enacted ordinances controlling the burning characteristics of fabrics used in theaters, restaurants, etc. It was not until 1946, however, that any attempt was made through legislation to control the flammability of apparel fabrics. In that year, the State of California passed legislation banning any fabric that was "more flammable than cotton in its natural state."

This California legislation was of course impossible to enforce, but it demonstrated a growing interest by government in the possibility of controlling burn injuries by legislation directed at fabric properties. It also alerted the industry to the possible difficulties arising from a multiplicity of state regulations which would seriously complicate the marketing of goods moving in interstate commerce.

The decision was therefore made by the industry to lend its support to reasonable federal legislation on fabric flammability, the only problem being that no test method or standard existed in 1946 for measuring the burning characteristics of fabrics. In an attempt to remedy this lack of a means for measurement, several industry associations

instituted a research program to develop a suitable test method. This project, which continued from 1946 to 1953, resulted in the development of the 45-degree apparatus and test method, which is embodied in Commercial Standard CS 191-53, and in various test methods issued by AATCC, ASTM, NFPA, etc. The development of the 45-degree test method provided for the first time a basis for meaningful legislation; and within six months after the issuance of CS 191-53, Congress had passed the Flammable Fabrics Act. This Act set standards for all fabrics used in wearing apparel (excluding hats, gloves, and footwear), and required that these fabrics demonstrate a time of burning of more than 3.5 seconds (4.0 seconds for napped fabrics) when measured by CS 191-53.

The purpose of the Flammable Fabrics Act, as expressed in the accompanying Congressional report, was "to discriminate between the conventional fabrics that present moderate and generally recognized hazards and the special types of fabrics which present unusual hazards and are highly dangerous." This purpose, admittedly limited, was admirably accomplished by the 1953 Act. It succeeded in eliminating from the market those fabrics and garments which everyone agreed were dangerously flammable -- such items as the "torch" sweaters, which caused a number of deaths and injuries in the early 1950's. There is, however, no reason to suppose that the general level of deaths and injuries involving flammable fabrics was significantly reduced, because the items eliminated by the 1953 Act formed an extremely minor part of the total U.S. apparel consumption. Most apparel burn accidents were, and are, happening with ordinary fabrics which, in the words of the Congressional report, "present moderate and generally recognized hazards."

About seven years ago, sentiment began to build for increased consumer protection from burn injuries. Bills were entered in the 88th, 89th, and 90th Congresses to strengthen the Flammable Fabrics Act. In February 1967, President Johnson, in a consumer message to Congress, called for new legislation on flammable fabrics. This support by the administration resulted in a bill to amend the Act, expanding its scope to include "interior furnishings," and giving the Secretary of Commerce authority to develop new or amended standards "to protect the public against unreasonable risk of the occurrence of fire leading to death, injury, or significant property damage...." This bill was passed, and signed into law, in December 1967, and has thus been in operation a little over three years.

While the wording of the law leaves to the discretion of the Secretary of Commerce the decision as to the need for new or amended standards -- based on "investigations or research" conducted pursuant to the law -- Congress made it quite plain in the Reports accompanying the bill that they considered that new or amended standards were needed. House Report 972 says: "...available evidence makes it abundantly clear that the toll in terms of death, injury, and disfigurement from fires involving wearing apparel and interior furnishings is far greater than need be." One is forced to interpret this as a not-so-subtle hint from the Congress that they would like to see stronger standards. And there

will be stronger standards, in a number of clearly defined areas, within the next few years.

What is the ultimate goal? Can all burn injuries involving fabrics be eliminated? I doubt it, and I doubt that even the strongest consumer advocate considers this a reasonable goal.

Work by the National Bureau of Standards, which has the primary responsibility for standards development under the Flammable Fabrics Act, has concentrated in a few of the more important areas, as defined by their research and by the investigations of actual burn injuries conducted by the Department of Health, Education, and Welfare.

Standards have already been issued for carpets and rugs. On April 16, 1970, the Secretary of Commerce issued Department of Commerce Standard DOC FF 1-70, which covers carpets and rugs with a surface area greater than 24 square feet and one dimension greater than 6 feet. This is a "self-extinguishing" standard, and is designed to detect, and eliminate from the marketplace, those carpets which, when ignited by a small ignition source such as a dropped match or a flaming brand from the fireplace, would propagate the flame in such a way as to endanger other furnishings or the building structure itself. The test is conducted by exposing a 9-inch square of carpet, which has been previously dried in an oven, to the flame from a controlled ignition source (a methenamine tablet). A specimen of carpet "fails" the test if the flame spreads more than three inches from the point of ignition. Failure of more than one out of eight specimens in a sample would prevent the sale, or manufacture for sale, of the item being tested.

Considerable criticism has been leveled at the methenamine tablet test, chiefly as a result of the publicity given to a fire which occurred in the Harmar House Nursing Home in Marietta, Ohio, in January 1970. Thirty-one persons were killed in the Harmar House fire, and initial investigative reports seemed to point to the carpet as a major culprit in these deaths. Tests by independent agencies showed that the Harmar House carpet would have passed DOC FF 1-70 and at a Congressional hearing investigating the fire, the chairman of the committee used this fact to indict the tablet test for being too lenient. A careful examination of the investigation reports on the Harmar House fire shows that there were many factors which contributed to the tragedy: lack of sprinklers, untrained personnel, etc. In addition, subsequent tests on the carpet showed clearly that even with high intensity ignition sources, the carpet itself was quite resistant to burning, and that it was the attached natural-rubber foam backing, of a type which is no longer used, that caused the flame propagation and resulted in the development of large quantities of toxic smoke and vapors.

The flammability of this attached backing material could easily have been detected by the application of the tablet test to the back of the carpet. This modification of the standard has been suggested to the Department of Commerce by the Carpet and Rug Institute, and

the industry has voluntarily adopted this standard on all of its production.

The National Bureau of Standards is currently engaged in an extensive research program, involving full-scale room and corridor burnings, aimed at the development of a "second generation" carpet test. This second generation test will attempt to take into account other parameters involved in fire hazard, such as smoke and toxic gas production.

On December 29, 1970, the Department of Commerce issued a standard for small rugs, which recognizes the fact that these items present less hazard because of their dimensions. In the case of small rugs, therefore, the manufacturer has two alternatives: he can either (1) comply with the methenamine tablet test criterion, or (2) he can label his products with the information that they do not pass the test. This standard, which goes into effect on December 29, 1971, gives the consumer the opportunity to make an informed choice between a product which fails to meet the test (she may not care because she intends to use it in a situation in which its flammability is not important; Ex. in a tile-floored bathroom), and one that passes the test (but whose price will undoubtedly reflect the additional cost of chemical treatments or substitute fibers).

On November 17, 1970, the Department of Commerce issued a proposed standard in the area that it considers of top priority -- children's sleepwear. The need for a flammability standard for children's sleepwear (and for other items of children's apparel) is obvious from an analysis of data on burn injuries and deaths involving clothing. Even a cursory examination of this data shows that young children are killed and injured at a rate that is 3 to 4 times as high as would be expected on the basis of their ratio to the total population.

While it has been suggested that a significant reduction in injuries and deaths could be accomplished by requiring slower burning fabrics, the analysis of this problem by the Bureau of Standards indicated that such was not the case. It was therefore decided to require "nonburning" or at least "nonpropagating" fabrics for children's sleepwear. The proposed standard is based on a modification of the "standard vertical test," as typified by Method 5903 of the Federal Test Method Standard 191. A 10 x 2 inch specimen, supported in a metal frame, is dried in an oven and exposed to a controlled ignition source (bunsen burner flame) for 3 seconds, and then again for 12 seconds. The ability of the fabric to resist flame propagation is measured by the "char length."

Public hearings were held on the proposed children's sleepwear standard in January of this year. Considerable objection was voiced by the industry to the provisions of the standard, and the Department of Commerce is now engaged in an analysis of the oral and written comments received. I have no doubt that a final standard will be

issued on children's sleepwear, and while there may be some significant alterations in the standard as proposed in November, the final standard will probably still be of the same level of severity. This standard for children's sleepwear will probably be only the first of several standards in the area of children's apparel, since a Finding of Probable Need published by the Bureau in January of 1970 mentioned two other areas -- dresses and underwear.

There is also reason to believe that some attempt will be made to control the flammability of apparel for the elderly. Burn injury data indicates the same high relative risk for those 55 and above as for the very young. Application of standards to apparel for this group, however, will be much more difficult, since it cannot be done on the basis of size.

In June 1970, the Department of Commerce issued findings that there "may be need" for flammability standards for mattresses, and for blankets. Research by the Bureau of Standards, and by Southwest Research Institute under contract to the Bureau, has clearly pointed to the mattress as the chief culprit in bedding fires. And recent data would indicate that fires originating in bedding may constitute as much as 25% of all structural fires. The mattress is a hazard because it is capable, through smoldering combustion, of producing large quantities of smoke and perhaps toxic fumes, even though the combustion may not have spread far enough to awaken the occupant of the bed.

An ASTM task group, operating under Committee D-13 on Textiles, has proposed to the Bureau of Standards a flammability test method for mattresses based on ignition by a cigarette. It is felt that a large percentage of bedding fires are caused by a smoldering ignition source, such as a cigarette dropping from the fingers of a sleeping or intoxicated smoker. The severity of the ignition source is increased when the mattress is covered by sheets and/or blankets, probably because these bed coverings act as an insulating medium to prevent the dissipation of heat from the ignition source. It seems probable, therefore, that the ultimate standard for the flammability of mattresses will embody a smoldering ignition source applied to a mattress that is covered with some assembly of sheets and blankets.

A small portion of the research done by Southwest Research Institute under contract to the Bureau of Standards involved the burning of upholstered furniture. The flammability hazard of upholstered furniture is similar to that of mattresses; and it is expected that the work done on the development of a suitable standard for the latter will be at least partially applicable to the former.

Analyses of the flammability hazard posed by blankets seem to concentrate on the possibility of flash ignition. Certain fabrics used in blankets are not too different from those represented by the "torch sweaters," at which the original Flammable Fabrics Act was directed. A possible solution to the flammability hazard of blankets would be the

application of CS 191-53, or a similar short-ignition, 45-degree test method, which is capable of easily detecting such fabrics.

The development of flammability standards by the Department of Commerce under the Flammable Fabrics Act is not the only government program directed at the control of flammable fabrics. Under the National Traffic and Motor Vehicle Safety Act, the Department of Transportation has issued standards covering fabrics for use in the interior of passenger and multi-purpose vehicles. Under the Child Protection Act of 1966, the Department of Health, Education, and Welfare acts to control the use of flammable fabrics and other materials in toys and other articles used by children. The Federal Aviation Administration has issued stringent flammability standards for fabrics used in the interior of commercial aircraft. The Public Health Service has established flammability standards covering carpets used in hospitals and other medical facilities funded under the Hill-Burton Act. The Social Security Administration has published proposed standards for floor coverings in nursing homes and other institutions under Medicare. The Department of the Air Force has established maximum flame spread ratings for carpets and rugs in hospitals, dormitories, and places of public assembly. In addition to these activities at the Federal level, state fire marshals and various municipalities have established regulations and ordinances to control the flammability of fabrics used in places of public assembly.

The control of burn injuries and deaths through regulation of fabric properties may or may not be the most effective means of accomplishing the desired result. In structural fires, for example, there is good reason to believe that more could be accomplished by requiring the incorporation of sprinkler systems in new construction. Although one might find it hard to believe after listening to Senator Moss and Ralph Nader, let me assure you that the industry is not in favor of burned babies or of tragedies like the Harmar House Nursing Home fire. The industry is bending every effort to develop the technology that will make it possible for us to provide completely safe fabrics. Estimates of the money being spent currently by the industry on the development of fire resistant fabrics range from 25 to 60 million dollars a year. The problem is not an easy one, and I do not expect any universally applicable solution within the next year or two. It is possible to provide certain fabrics, for certain uses, that are flame resistant. With flame resistance, however, as with all new developments, the consumer may have to accept the loss or reduction in other desirable properties. Only you, the consumer, can make this decision. As further steps are taken in the establishment of regulations controlling flammable fabrics, make your voice heard in Congress and in the Executive agencies, so that future actions will truly reflect your wishes.

USING LABOR FORCE INFORMATION IN RURAL AREAS

Talk by
 Sonya Shepherd, Boise Southern Company
 at the 1971 National Agricultural Outlook Conference
 Washington, D. C., 2:00 p.m., Thursday, February 25, 1971

Across America today, there are thousands of people spending millions of man-hours and perhaps billions of dollars collecting, tabulating and printing labor force statistical data designed to meet the needs of both the public and private sectors of our nation. Perhaps because these data are designed to fulfill the needs of so many unrelated and antithetical consumers, they necessarily fall short of providing anyone with the desired information. Consequently, far too many consumers have thrown up their hands in defeat and rejection of the data that is available. It is, therefore, with a specialized and a prejudiced point of view that I talk to you today about using Labor Force Information in Rural Areas. My qualifications might best be utilized by addressing the subject "How to Industrialize Rural America Without Utilizing Labor Force Information."

As a child, I was one of those rural statistics that we flippantly talk about. As an employee of a company which produces products from forests, my neighbors and friends are those rural statistics. Thirdly, in my chosen profession, I have assisted in trying to locate plants in rural America. Fourthly, and lastly, I have had the dubious privilege of industrializing three different locations of rural America. Forgive me for being cynical, but we have succeeded in spite of, rather than due to, all of this assistance offered.

We rural folk, have difficulty in understanding why a hundred jobs are more important in Metropolis, U.S.A., than they are in Rural, U.S.A.! Are urban people's hunger more painful; their bareness uglier; their illnesses more dreadful? Must we rural folk continue to flee to Mecca Metropolis in order to survive? Does America want us to vacate the countryside and inflate big-city slums and big-city welfare rolls? Lastly, is this what is happening?

Perhaps one of the factors creating much of the problem is the lack of an accepted definition of the terms-rural vs. urban. We hear such terms as "rural farm," "rural non-farm," "small town," "country-side," "suburbia," "agricultural community" and on the other hand-"city," "big-city," "metropolitan," "Standard Metropolitan Statistical Area." Confusion lies within various departments of our government with regard to providing benefits and services. One population-size town can qualify for home building by the Farm Home Administration, but a different figure is used by the Federal Housing Administration and never the twain shall meet! It takes an altogether different size population to qualify for sewage treatment assistance. It seems that nearly every group has a different definition. Whether

this is caused by legislative definition or by administrative fiat, I do not know, but there are a lot of people living somewhere between rurality and suburbia and they are getting mightily uncomfortable.

It is highly doubtful that all of these terms and definitions serve us well in formulating policies or administering programs to achieve a viable, balanced economic growth throughout all of America.

In language used by the decennial Census of Population, the term "urban" normally defines areas larger than 2,500 people. Smaller areas are classified as "rural," although the official determination takes into consideration other factors, such as population density and adjacency to urban areas. Until such time as we can all define the term "rural" or "urban," it appears probable that we will continue to remain mired in this impediment to communication.

Among the labor force statistical services available today, the decennial Census of Population remains the best source of information to the industry locator in his quest for a building site. Although this source contains the data needed by industry, by the time it is available, its age has greatly reduced its reliability and authenticity. Due to the mobility of the labor force and its resultant population shift as well as the increasing numbers of plant erections, data that are more than a year old are almost worthless. And thus, the Census data becomes obsolete for industry-locating purposes almost with its printing. Certainly, by decennial mid-point, its usefulness in, and value for, industrial location diminishes with the passing of time.

Perhaps the best explanation of how Labor Force Information is used in Rural Areas would be to relate the actual experience of locating a plant in the southwest corner of one of our Southern states.

In 1960, eight years after the 1960 Census of Population, construction was begun on a \$100 million pulp and paper mill. United States Census reports for 1950 and 1960 on significant aspects of population, housing and business are as follows:

Census figures show a twenty-four percent increase in the total population between 1950 and 1960. The local Chamber of Commerce reported a 1968 population estimate of 8,500, indicating a further increase of eighteen percent since 1960. The proportion of non-white residents remained approximately the same, about thirty percent, from 1950 to 1960.

During the decade between 1950 to 1960, the Census figures reported a decrease in the wage-earning population with an increase in pre-school and school-age population and the population above 45 years of age.

Median school years completed by persons age 25 years and over rose from 8.1 in 1950 to 9.1 in 1960. The proportion of persons over age

25 completing high school and beyond rose from twenty-four percent to thirty-five percent of the total.

Employment figures showed a slight decline (three percent) in the male labor force and a decline of five percent in the employed labor force. However, unemployment increased from 4.7 percent to 6.9 percent and nearly doubled for those not in the labor force. While some of the increase in the group not in the labor force may be accounted for by longer schooling, it should be noted that the age group of 15 to 19 years increased by forty-five percent during the decade, and the age group of 20 to 24 years suffered a slight decline. This may mean that unemployment was actually much higher than indicated but that many of the unemployed were not actually seeking employment.

Employment by major occupation groups among males showed an increase of eighteen percent in the category of managers, officials, proprietors, except farm. Categories of craftsmen, foremen and kindred workers remained almost constant, while operatives and kindred workers dropped fourteen percent. Service workers, except private household, increased sixty-eight percent and laborers, except farm and mine, dropped fifty-two percent. Among females, the most noticeable increases were among clerical and kindred workers, up ninety-six percent and service workers, except private household, up sixty-three percent.

With only five percent increases in the employed labor force, from 1,935 in 1958 to 2,034 in 1960, the changes in all categories of employment in industry groups were significant indicators of the changing economic structure of the town. Large declines in manufacturing (twenty-two percent) and construction (thirty-eight percent) for example, contrasted with notable increases in transportation, communications, and other public utilities (sixty-eight percent).

The percentage of families with incomes under \$3,000 decreased significantly between 1950 and 1960, from seventy-one percent to forty-three percent. All income categories above \$3,000 showed increases, especially in those \$6,000 and over, e.g. the number of families with incomes of \$10,000 and over increased from 10 to 150. Accordingly, the median family income rose from \$1,764 in 1949 to \$2,736 in 1959.

The U.S. Census of Housing showed a sizable increase in the number of owner-occupied housing units during the decade and an increase of fifty-seven percent of the total number of housing units. The number of owner-occupied units increased fifty-four percent while the number of renter-occupied units decreased thirteen percent. However, only twenty-seven percent of the total number of units were built after 1949.

The U.S. Census of Business showed a decline between 1954 and 1958 in the total number of retail establishments: from 138 to 113. However, the number with payroll increased from 89 to 97, with the payroll for a year increased from \$994,000 to \$1,457,000. Retail sales increased from \$9,973,000 to \$13,568,000 and doubling the later figure by 1967.

Superimposed on these statistics are the labor force needs for this pulp and paper mill:

- A) An inexperienced labor force of approximately 150 people (to be supplemented by approximately 150 experienced people to be imported from other pulp and paper mills)
 - 1) Functional literacy above ninth grade level
 - 2) Mechanical comprehension above fiftieth percentile
 - 3) Local address within mill commuting distance
 - 4) One third of employees from Negro race
 - 5) No serious physical impairments
- B) Housing sufficient to accommodate 200 families (50 management and supervisory, and 150 skilled hourly employees). This should be priced 25% under \$20,000; 25% under \$25,000; 25% under \$30,000; and 25% over \$30,000.
- C) Schools sufficient to accomodate a sudden influx of an estimated 400 to 500 students at levels 1-12 grades. Schools should be accredited and of high academic level with proven results, e.g. National Merit Scholars, graduates succeeding in major colleges, etc.
- D) Retail establishments sufficient to provide necessities of life
- E) Banks and other home-financing institutions
- F) Good highway to at least one major city
- G) Medical facilities
- H) Miscellaneous, e.g. churches, youth activities, public transportation, appliance repair shops, utilities, municipal services, public library

Analyzing the two sets of statistics, the conclusions drawn were that, other than a possible housing shortage, all needs would be met. Actual experience, however, refuted the statistical analyses.

- A) Local Employment - Recruitment was done by State Employment Service, newspaper and radio advertisements, appeals to civic and church groups, and by word-of-mouth. A total of 175 applications were received. Of this group, eighteen scored at the ninth-grade level or higher as measured by the Stanford Achievement Test, Intermediate Battery, Word Meaning and Arithmetic Comprehension Sub-Test. It was quite obvious at this point, that the local community could not provide the qualified, inexperienced personnel to staff the mill. Thus, two alternatives

existed, e.g. recruit outside the local level or upgrade the literacy of local applicants.

Upon investigation, a number of organizations existed (both profit and non-profit) that would undertake an educational process with a money-back guarantee to upgrade reading speed and comprehension as well as arithmetic comprehension at the rate of one grade level per 80 hours of instructions. The fee was \$1,300 to \$1,500 per student. Local and State funds for adult education were unavailable for this type training. In addition to the cost of education, the trainee would have to be paid a subsistence stipend. Thus, if 100 local people were sent to school for 480 hours (12 weeks), the cost would be \$130,000 to \$150,000 for training and \$76,000 for subsistence.

In 1968, there was no Federal Assistance Program for education and/or training of underprivileged outside of the Big Cities. However, after extensive efforts, the Office of Education, Department of Health, Education and Welfare, agreed to an experimental program wherein they would underwrite the cost of the training coupled with a two-year intensive socio-economic follow-up study provided the funds for trainee subsistence was furnished by the employer. These terms were agreed upon, resulting in fifty blacks and fifty whites being recruited and trained.

- B) Housing became a very acute problem. There was a need for 120 single-family units to be constructed. This need coincided with the rapid upward spiral of building and financing costs. The town was too large to qualify for rural housing and sewage facilities, and too small to qualify for Federal Housing Authority insurance for this number of houses. Local contractors, which numbered five, had never built more than thirty units per year and were extremely dubious of doubling that number. Local money-lending institutions were experiencing the greatest money demand of their lifetime. This problem required two outside contractors to be recruited, \$1 million to be made available to the local lending institutions, and much pressure to be exerted on the Federal Housing Authority to raise their quota of ten guaranteed mortgages to one hundred.

The other pertinent factors in the industrialization of this rural area posed no problem. But the entire experience of analyzing potentials and needs using available labor force information, 8 years past the decennial Census of Population, forcibly underscores the fact that such data can only be used as a very rough indicator of actuality.

UNITED STATES DEPARTMENT OF AGRICULTURE
Farmer Cooperative Service

CHANGING STRUCTURE OF THE MARKET

Talk by Eric Thor, Administrator
at the 1971 National Agricultural Outlook Conference
Washington, D. C., 10:30 a.m., Thursday, February 25, 1971

In the past, the structure of American agriculture was shaped primarily by what happened on the farm. In the coming decade or two, American agriculture will be shaped more by what happens off the farm than on the farm.

Two trends already causing shifts could drastically change the entire structure of U.S. agriculture. These are (1) the multinationalization of U.S. agriculture and food firms; and (2) shifting from a commodity market system to an integrated food production-market-service system.

Multinationalization Enterprises 1/

Development of regional trading blocs has encouraged U.S. agriculture and food firms to become multinational in scope.

U. S. based companies have set up farming operations, food processing, and retail companies within major trading blocs and in other foreign countries. A good example is the California based Del Monte corporation.

Increasing cost of rail and truck transportation within the U.S. and new technological improvements in air transportation are also stimulating multinationalization.

Grain and soybean marketing firms, both farmer-owned cooperatives and public stock-owned and private-owned corporations, have become multinational in scope. Many have aggressive marketing teams in foreign countries.

Multinationalization of U.S. agricultural and food firms is providing farmer-owned cooperatives an opportunity to obtain a larger share of the growing international market. For example, two groups, the California Almond Growers Exchange and Sunkist, a leading citrus marketing cooperative, each recently received the E-Star award. This award was jointly made by the U.S. Departments of Agriculture and Commerce for their outstanding international market programs.

1/ Multinationalization as used in this paper refers to joint ownership between U.S. firms and foreign firms of the companies located in foreign countries or some kind of operating agreement with foreign firms or foreign governments.

Some agricultural groups consider the trend as something undesirable. They view it as providing increased competition for U.S. farmers in our domestic markets. This is because many of the major U.S. retail stores are procuring the products they sell to housewives from a worldwide base rather than from primarily a U.S. base as has been the practice in the past. In addition, multinational processors move products from country to country as market opportunities develop.

Some retail stores are forward contracting with farmer-owned cooperatives in foreign countries. It is common for these contracts to specify the type, quality, and quantity of products and the dates of delivery to the stores in the United States. Often the contracts are for more than one year.

The Integrated System

Now, let's consider the second trend. Restaurants, hospitals, schools, colleges, business offices, industrial plants, government installations, the armed forces, and retirement homes are among the groups that are closing down their conventional kitchens. Some are buying food that only needs to be heated and have seasonings added before serving. Others are contracting for food and food service.

Housewives are also buying increasing volumes of nearly-ready-to-serve foods in retail stores and from fast-service carry-out restaurants.

Nearly-ready-to-eat food is not new. The T.V. dinner has been around for a number of years. However, the concept of having fresh and processed food commodities assembled and processed into nearly-ready-to-serve food in large commissaries and then used as component parts of meals for a large proportion of the Nation's population is new.

Processing nearly-ready-to-serve food includes primary processing, further processing, and meal preparation. Primary processing of fruits and vegetables takes place in processing plants near where the crops are produced. Further processing of these products then occurs in central commissaries just before assembling food into meals for the institutional market and into packages for the retail trade.

Red meats, broilers, turkeys, fish, and dairy products are further processed and cut into individual servings in the first-stage packing and processing plants. These items then move to the commissaries where they are combined with other ready-to-serve foods.

The food prepared for the institutional trade is usually packaged in throwaway dishes, pots, and pans. Prepared food marketed through the retail store is attractively packaged and marketed under brand labels.

Companies in the business of assembling and preparing food items into ready-to-serve food are generally called food converters. It is not uncommon for these firms to prepare foods for mass feeding establishments and retail stores located a hundred miles or more from the central commissary.

Effects of New Food System Upon Marketing

This new concept of food and food service is stimulating change that is affecting all segments of the food and agriculture industry.

Food processing companies and some retail stores are becoming fully integrated food companies. Some processors are integrating all the way forward into the food service and restaurant business. Others are only integrating forward into the preparation of nearly-ready-to-serve foods and marketing their product through the retail stores. Some retail chains are entering the mass feeding business.

Integration is affecting the system in several ways:

1. Reducing the number of decision-making "points" in the system.
2. Increasing the importance of price in the procurement of fresh and processed food items.
3. Decreasing the opportunity for expanding consumption of any particular commodity through advertising.
4. Increasing the use of product specification in procurement.
5. Changing the mix of fresh, canned, and frozen foods.
6. Increasing the use of forward contracting throughout the system.
7. Making it more difficult to determine the competitive farm price.

Let me elaborate on these points:

1. Integration is reducing the number of decision-making "points" in the food industry.

Historically, the head chef, or in some cases the dietitian, decided what foods would be included in the menus served in the various institutions or places of business. In the total food industry, thousands of people were involved in deciding what particular products would be served. This meant thousands were involved in deciding what commodities and products would be purchased in the market. This provided customers for produce markets and wholesale meat markets.

Under the new system, this is drastically changed. The large food firms are centralizing the decision-making process regarding food item selection and procurement. Standard menus are developed. Each menu has several substitutable items that can be served. Computers are used to determine which of the substitutable items produce the least cost menu.

2. The relative price of substitutable products becomes more important in the new system than in the present. This is because differences of as little as one-tenth of one cent per meal affect the profit of food firms preparing and serving a million or more meals a day. Commodities that have had a favorable price relation primarily because of bargaining with processors may find the demand for their product decreasing. For example, if it cost more to have a serving of peaches in the menu than a serving of plums, then the computer would select plums.

3. For years some farm groups have spent money to advertise their specific commodity. The increasing use of the computer in the selection of specific food items may reduce the effectiveness of commodity advertising. In addition, ready-to-serve foods sold in the retail store will probably all be marketed either under a national processor label or under retail store label. This will also tend to reduce the value of commodity advertising.

4. In order for food companies to insure themselves of obtaining specific and uniform products they are shifting more and more to using product specification in procurement. Increased use of product specification forces farmers to use particular varieties and specific cultural practices. It also requires that the product be processed in a specific manner. This type of procurement practice tends to decrease the value of canners' and processors' labels that are not of national scope. The importance of brands and labels will be confined primarily to those items that are sold off the retail store shelves.

5. In addition to changing the marketing of products, the new food concept is changing the mix of fresh, canned, and processed food demanded by the market. Food converters mostly use items that can be frozen.

This trend will affect firms that process and market canned products and packers that market only fresh meat. Canners can expect, in addition, a shifting away from small containers to some form of large bulk containers for moving processed products from the primary processing plant to the central commissaries.

The canning plants for many vegetables and some fruits will have to add new processing equipment to meet the changing demand. Firms manufacturing cans for processing fruits and vegetables will also have changing demands for their product. Meat packers will need to do more cutting and freezing.

6. Centralizing the mass feeding business can be expected to lead to fewer firms. These should be more equal in strength than presently. This, undoubtedly, will make bidding for contracts more competitive. Competitive bidding for business usually narrows margins.

With narrower margins, food converters, before they bid for their institutional business, will want to have an estimate of their cost. In order to get this they will, undoubtedly, ask the processor and packer to contract with them.

Once processors and packers are asked to contract, they will want to contract with farmers for raw products and livestock.

7. The new integrated food system is going to make it more difficult than it presently is for processors and farmers to discover the true competitive farm price. Paying and getting what each individual thinks is a fair price is going to become a major problem.

Farmers who market their products through farmer-owned processing and marketing cooperatives will have less difficulty than other farmers. This is because the price they will receive will be determined after the product has been processed and sold to the food converter or to the retail store.

Alternative Market Structures

Let me go into more detail now on the effect of one of the changes I've been discussing -- the effect of contracting. Increased use of contracting will undoubtedly create difficult problems for farmers and processors. Four major types of industry structures with combinations thereof are expected to emerge. These are:

1. Farmers organized into bargaining associations to negotiate price and terms of contract with processor and packer.
2. Large food corporations integrated back from the ultimate consumer into farming.
3. Farmer cooperatives integrated forward from the farmer to the ultimate consumer.
4. Joint ventures between farmer-owned cooperatives and public stock-owned or privately-owned corporations integrated from the farmer to the ultimate consumer. 1/

1. Farmer Bargaining

Terminal produce and livestock markets for many provided the base for determining the competitive farm price. These markets have either closed down or the volume and type of produce and livestock handled no longer reflects a competitive market upon which to base a farm price.

Without a competitive market where prices are reported, it is difficult for farmers as individuals to effectively negotiate a contract with processors and packers.

This is because farmers do not have "withholding power." The two major reasons why farmers cannot have effective withholding power are (1) the nature of agriculture, and (2) the economic position of farmers as individuals.

The nature of agriculture production is such that once life has started either in plant or animal it cannot be stopped and started up again. If crops are carried to maturity, nearly all have to go to market or to the processing plant.

1/ Farmer-owned cooperatives are in fact corporations.

Farmers also have problems in bargaining effectively because they have large investments in land equipment and livestock. Interests, taxes, and installment payments have to be met or the farmer is forced out of business. Few farmers can afford to leave their land idle or withhold their product from market once it is produced.

Farmers who are not members of a cooperative which is engaged in processing and marketing have little choice but to band together to negotiate terms and price of contracts with processors and packers.

Farmers of some commodities have joined together to have a bargaining association. A few groups such as the California Cling Peach Association have been fairly successful. However, increased legislation is needed if farmers on a broader scale are to have bargaining strength equal to processors and packers.

Farmer bargaining can, at best, only be an interim step toward developing a stable agriculture. This is because successful farm bargaining tends to sow its own seeds of destruction. If the price of the commodity is increased enough so that farmers can make a profit then production is increased.

Some groups have a market order to regulate volumes going to market. These controls force "dumping" of the product or diverting to a lower class use. This increases farmers' costs. For example, if you drop twenty-five percent of a particular fruit on the ground, it is the same as decreasing grower's yield by twenty-five percent.

The multinationalization of agriculture and food companies will require that U.S. agriculture be as efficient as possible if it is going to maintain the domestic market and get an increasing share of the world market. In addition, the use of the computer by food converters in procurement will make it difficult to raise the price of one commodity without raising the price of all substitutable commodities.

Regardless of how unsolvable the long-run problems of bargaining appear to be, it is probably the only tool farmers have to get their fair share of the final food price in the emerging food system.

If cooperative bargaining is to be a major tool in bringing agriculture and the food industry into greater balance and more stability, farmers will have to have increased bargaining power. The two groups, farmers and processors, will need to become more nearly balanced in strength. This is necessary so that the uncertainties will be equal for both groups.

If progress toward a more stable system is to be achieved, then the system will have to create an atmosphere where both parties want to work together. In order for both parties to be willing to cooperate, a system is needed where the processor will not know from season to season whether or not he will be able to negotiate a contract that will enable him to be competitive with other processors and the farmer will not know whether or not he will have a "home" for his product until a contract is signed.

If both parties have equal strength, then bargaining will either go smoothly or become very unpleasant. If bargaining becomes very unpleasant, then both parties will seek to solve their differences or seek some other alternative.

2. Public-Owned Stock Corporations

If farmers become difficult to negotiate price and terms of contract with, then it is highly probable that some of the food companies will integrate backward into farming.

This type of arrangement would assure the food companies the amount and type of product they require at the place they want it. The food companies would also know what their costs of production are, and, therefore, would be in a better position to forward contract their nearly-ready-to-serve foods to the institutional trade and talk price with the retail buyers.

The major disadvantage of large integrated farming operations is the specialized management required. Operating very large farms is more difficult than operating most manufacturing plants. In addition, economic studies show that very large farming operations tend to have higher management and labor costs than do the efficient sized owner-operated farms. Operators of efficient sized family farms, however, are not able to sell their products as well or purchase their factors of production as cheaply as the very large farms.

3. Farmer-Owned Cooperatives

The alternative of farmer cooperatives integrated forward from the farmer to the ultimate consumer should offer the farmer his greatest potential for obtaining the maximum return for his management, labor, and investment.

It would assure the farmer a "home" for his product. It would provide him an opportunity to share in all the profits from production through marketing. It would allow the farmer to protect his much cherished decision-making role on what and how much to produce and how to market it. In addition, it would provide an opportunity for farmers to work together to balance supply and demand.

This type of market structure does not develop easily. It requires leadership, vision, and courage. Farmers as individuals tend to be very independent. Each likes to make his own decisions regarding what, when, and where he is going to market his product.

However, farmer-owned cooperatives are developing integrated food firms. Land O'Lakes, Farmland Industries, Gold Kist, Agway Inc., Riceland Foods, and Indiana Farm Bureau Cooperative Association are among the leading cooperatives moving to become part of a fully integrated food system.

4. Joint Ventures

The fourth alternative, joint ventures between farmer cooperatives and public-owned stock or privately-owned corporations integrated from the farmer to the ultimate consumer, offers a way for pulling together owner-operator farmers and aggressive marketing firms.

Farmer-owned cooperatives are joint venturing in processing and marketing with aggressive U.S. marketing corporations, both in the United States and in foreign countries.

Generally the farmers furnish the raw product, the two joint venture on the processing plants, and the corporation does the marketing, product research, and market development.

Examples of joint ventures between farmer-owned cooperatives and corporations include a citrus cooperative in Florida joint venturing with Minute Maid and the major grape growers cooperative in California joint venturing with Heublein, a major bottler and beverage merchandiser.

Summary

None of us knows what the future will be. However, all indications are that we are going to have a multinational, integrated food production-market-service system.

Within the system there will be room for many different types of business firms and combinations. There will be some large integrated conglomerates -- firms that are diversified into the food industry in order to assure that they will not have to depend upon any one market, any one product, or any one technology.

There will be a number of multi-product integrated farmer-owned cooperatives.

There will be a number of joint venture companies made up of strong aggressive marketing corporations and farmer-owned cooperatives.

Competition in the final market place will be keen. Prices to the consumer should be a result of equal or greater market competition than we have today.

Stability in agriculture and the food industry should be greater.

The owner-operator concept in which the farmer maintains his cherished decision-making role should survive.

Change never comes easy. The new system will not just develop by itself.

Increasing the farmers power to bargain effectively with processors and packers may serve as a catalyst to hasten the day when income to agriculture will be comparable to those in other U.S. industries.

The Extension and Research workers of the Land-Grant colleges and the USDA can help the farmers to understand:

- that there is no shortcut to improving the farmers market position,
- that there is no such thing as bargaining directly with individual retailers or consumers,
- that no one can do more for farmers than what they are willing through group action to do for themselves, and
- that farmers cannot expect government to bargain for them. Politically, it is impossible for any administration to set prices high enough to satisfy the farmer and at the same time please the housewife.

Relief from low income has to be brought about by farmers working together to improve the market system. It cannot be brought about just swinging a big stick. It can only be brought about by reasonable men reacting in a reasonable manner in making their decisions.







